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ABSTRACT

A detailed description is presented of the types, functions, performance levels, governance, administration, and funding of public examinations in 14 Sub-Saharan African countries with different educational traditions, based on English, French, or other backgrounds. The countries are: (1) Kenya; (2) Lesotho; (3) Mauritius; (4) Swaziland; (5) Uganda; (6) Zambia; (7) Chad; (8) Guinea; (9) Madagascar; (10) Mauritania; (11) Rwanda; (12) Togo; (13) Cape Verde; and (14) Ethiopia. In virtually all of these countries, public examinations are offered at the end of primary (elementary) school, lower-secondary school, and upper-secondary school. Procedures for funding, constructing, administering, and scoring the examinations are discussed. Issues discussed include passing rates, the effects of examinations on teaching and grade repetition, the roles of assessment, implications of national policies, and other current international issues in education. Guidelines are offered for improving the quality of examinations and their uses. This synthesis report draws on a series of studies supported by the World Bank. Findings from the 14 studies confirm that public examinations may help raise academic standards, but can also cause many problems in an educational system. Nine tables present data from the studies. A 105-item list of references and three appendices with supplemental information are included. (SLD)

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Using Examinations to Improve Education

A Study in Fourteen African Countries

Thomas Kellaghan and Vincent Greaney

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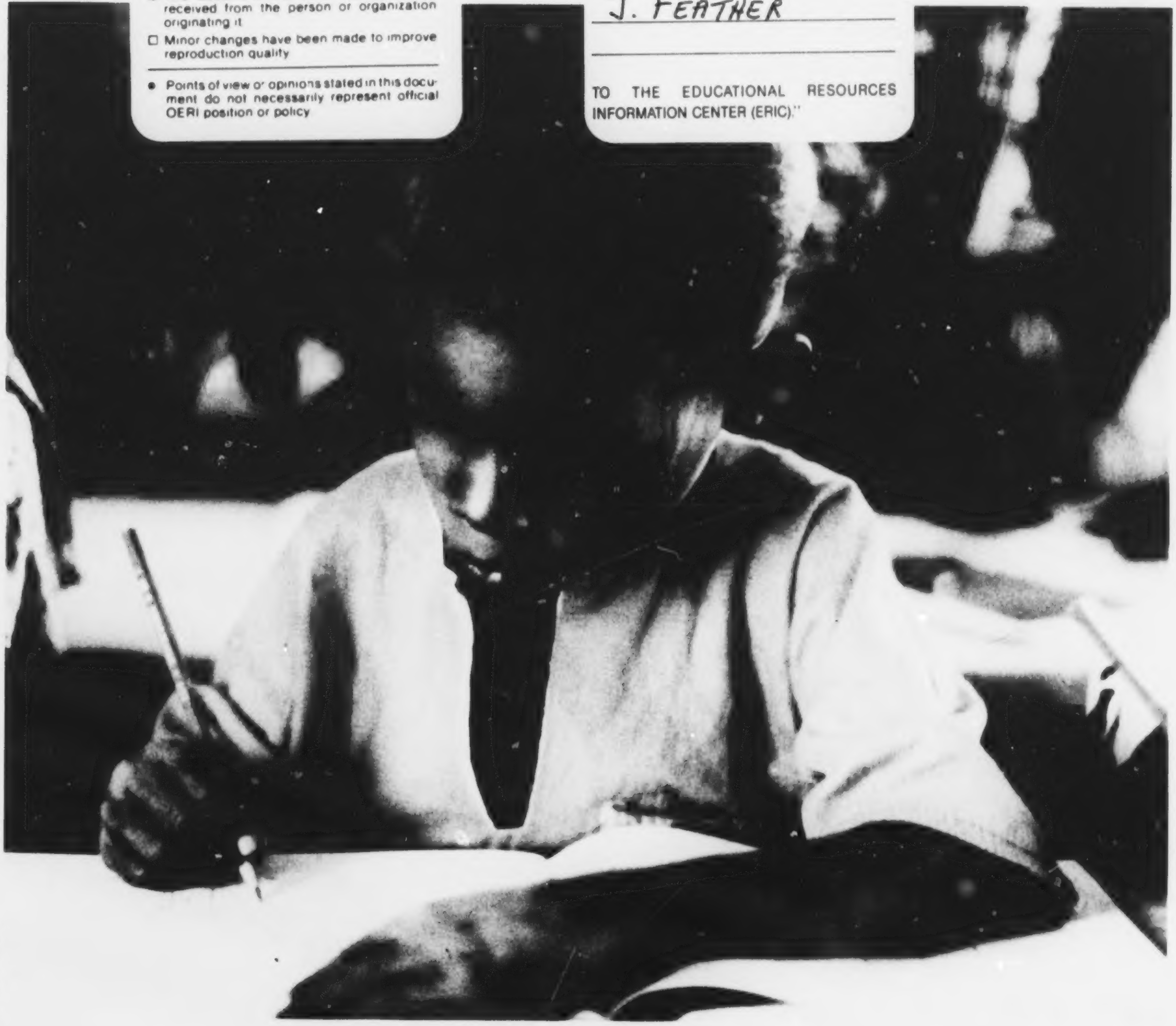

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Using Examinations to Improve Education

A Study in Fourteen African Countries

Thomas Kellaghan and Vincent Greaney

The World Bank
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Foreword

Public examinations tend to exert enormous influence on the nature of learning and teaching; they tend to dictate not only what is taught but also how it is taught. In developing countries, while most examinations serve a number of functions, including certification and accountability, their main function is to select students for the next highest level of the educational system. Their impact is most pronounced due to the shortage of places, particularly at the secondary and tertiary levels of formal schooling.

This study presents for the first time a detailed description of the types, functions, performance levels, governance, administration, and funding of public examinations in a range of African countries with different educational traditions. The national public-examination systems of fourteen Sub-Saharan countries are reviewed. Six of the countries are Anglophone (Kenya, Lesotho, Mauritius, Swaziland, Uganda, and Zambia) and six Francophone (Chad, Guinea, Madagascar, Mauritania, Rwanda, and Togo). The two remaining countries are Cape Verde and Ethiopia. Public examinations are offered in virtually all of the countries at the end of primary, lower-secondary, and upper-secondary school.

Procedures for funding examinations; for constructing, administering, and scoring papers; and for reporting results in each country are outlined in the report. Issues discussed include low pass rates, the backwash effect that examinations have on teaching and on grade repetition, the roles of school-based and practical assessment, the implications of national language policies, the use of quotas and compensation procedures, the publication of national school rankings based on examination performance, and the low level of technical support available to examination authorities. Guidelines are offered for improving the quality of examinations and for using examinations to improve education.

Many current international issues in the controversial topic of examinations and assessment are addressed. Thus, the study should be of interest to ministry of education officials, national examination bodies, development agencies, and national and international educational organizations. By offering concrete proposals for improving the quality of public examinations, and by focussing on the close interrelationship between formal assessment, teaching and learning, it helps pinpoint the way to raising the level and the quality of education of pupils in Sub-Saharan Africa.

Ismail Serageldin
Director
Technical Department
Africa Region

Preface

The studies synthesized in this report originated from the emphasis on improvement in educational quality in the World Bank's policy paper, Education in Sub-Saharan Africa, published in January 1988. This emphasis was highlighted by twelve African Ministers of Education at the first plenary meeting of the Donors to African Education (DAE), established in the same month to support priority educational developments. When the DAE Task Force met in June 1988, a Working Group on School Examinations (WGSE) was also established, in recognition of the important role examinations can play in quality improvement.

The World Bank Education and Training Division of the Africa Technical Department (AFTED), in assuming responsibility for developing appropriate activities to further quality improvement, then prepared terms of reference to undertake studies on examinations in primary and secondary education in Sub-Saharan Africa. The main objectives of the studies may be summarized as follows:

(1) to improve educational quality in a cost-effective way through adjustment of inputs relative to examination systems

(2) to help develop institutional capacity in Sub-Saharan countries accordingly.

Five studies (funded by the Bank's Economic Development Institute (EDI) and the Irish Government), completed in Fall 1988 by the Educational Research Centre (ERC), Dublin, were discussed at a seminar on Using Examinations and Standardized Testing to Improve Educational Quality in Lusaka, Zambia in November 1988. At this seminar, AFTED presented its terms of reference to deepen and extend the studies. Following consultation, fourteen countries agreed to participate in a set of studies under the terms of reference. Public examination systems in six Anglophone countries (Kenya, Lesotho, Mauritius, Swaziland, Uganda, and Zambia), six Francophone countries (Chad, Guinea, Madagascar, Mauritania, Rwanda, and Togo) and two other countries (Cape Verde and Ethiopia) were investigated

The studies were started in early 1989 under AFTED management, with Bank and Irish Government funding. Ireland agreed to act as lead donor, operating through the Irish Aid Agency, Higher Education for Development Cooperation (HEDCO). An initial model study was carried out in Swaziland. Studies of examination systems in the six Anglophone countries and in Ethiopia were carried out under the direction of the ERC, Dublin; examination systems in Francophone countries and in Cape Verde were studied by Management Planning and Research Consultants (MPRC), Bahrain. An important feature of these studies was the active participation of counterparts nominated by Ministries of Education (MOE). In addition, lead donor Ireland hosted periodic meetings of the WGSE to advance the implementation process. Progress reports were presented at DAE Task Force meetings. The findings of this synthesis report were discussed at a November 1990 World Bank-sponsored seminar in Killiney, Dublin, attended by examination officials from each of the fourteen countries and representatives of donor agencies.

This synthesis report is based on: (1) an analysis of existing examination systems;

(2) diagnosis of qualitative problems; and (3) assessment of existing institutional capacity. The report draws also on research evidence from work undertaken in Western as well as African countries to form an assessment of examination practice in Africa and to suggest guidelines for the construction and administration of examinations that improve the quality of education.

Preparation of the series of studies on Using Examinations to Improve Education was managed by James McCabe, Principal Education Planner, Education and Training Division, Africa Technical Department of the World Bank.

Individual country studies were prepared in collaboration with Ministry of Education authorities in each country, by the following principal authors:

1. Ethiopia: R. Reilly, M. O'Donoghue, V. Greaney
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7. Zambia: T. Kellaghan, M. Martin, J. Sheehan
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9. Guinea: M Chaibderraine, I. Sankhon
10. Madagascar: N. Constantine, J. Hosman, Mr. Rakoto, et al.
11. Mauritania: M Chaibderraine, M. El Hafed Ould
12. Rwanda: A. Brimer, J. Hosman, D. Kayinamura, E. Munyantwali
13. Togo: N. Constantine, A. Sewa
14. Cape Verde: F. Oliveira, O. Carvalho

The authors are indebted to Stephen Heyneman for his input into the design stage of the studies; to Marlaine Lockheed, George Madaus, Eoghan MacAogain, and Ingvar Werdelin for comments on an earlier draft; and to Thomas Poole, Alicia Hetzner, and Michael Matovina for preparing the report for publication.

Acronyms for Public Examinations and Examination Authorities

BEPC	*Brevet d'études du premier cycle.* External examination taken at end of first cycle secondary (four years) in Togo, in Guinea, and in Chad.
CEE	Elementary certificate, taken at the end of primary school, Mauritania.
CEP	*Certificat de fin d'études primaires.* Primary-school leaving examination, Rwanda.
CEPD	*Certificat de fin d'études de l'enseignement du premier degré* External certificate examination at end of primary; also admission examination to secondary school, Togo.
CEPE	*Certificat d'études primaires élémentaires.* External examination taken at end of primary school in Madagascar, Chad.
CEPEA	*Certificat d'études primaires élémentaires.* External examination taken at end of primary school in Chad, for Arabic-speaking students.
CFE/FP1	*Certificat de fin d'études de la formation professionnelle du niveau 1.* External examination taken at end of first two-year vocational training period (Level I) in Madagascar.
CFE/FP2	*Certificat de fin d'études de la formation professionnelle du niveau 2.* External examination taken at end of second two-year vocational training period (Level II) in Madagascar.
CFEPCES	*Certificat de fin d'études du premier cycle de l'enseignement secondaire.* External examination taken at end of first cycle of secondary school in Madagascar.
CPE	Certificate of Primary Education, Mauritius.
DEC	Director of Examinations and *Concours*, Togo.
ESLCE	Ethiopian School Leaving Certificate Examination.
HSC	Higher School Certificate, Mauritius.
KCPE	Kenya Certificate of Primary Education, taken at the end of the eight-year primary cycle.
KCSE	Kenya Certificate of Secondary Education taken at the end of the four-year secondary cycle (introduced in 1989).
KNEC	Kenya National Examinations Council.
MES	Mauritius Examination Syndicate.
PC	Primary Certificate.
PLE	Primary Leaving Certificate.
SC	School Certificate, Mauritius.
SEC	Service of Examinations and *Concours*, Chad.
UACE	Uganda Advanced Certificate of Education.
UCE	Uganda Certificate of Education.
UCLES	University of Cambridge Local Examinations Syndicate.
UNEB	Uganda National Examinations Board.

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1 Summary

This Synthesis Report summarizes data and information from a set of studies undertaken in:

(1) Kenya, Lesotho, Mauritius, Swaziland, Uganda and Zambia;
(2) Chad, Guinea, Madagascar, Mauritania, Rwanda, and Togo, and
(3) Cape Verde and Ethiopia.

It outlines the findings, issues and recommended improvements from the fourteen individual studies undertaken on primary and secondary school examinations.

Considerable reliance has been placed on public examinations in African education as a means of ensuring that teachers and students cover a common curriculum, and accordingly as a particularly effective instrument for raising academic standards. However, it has also been argued that while public examinations may help raise academic standards, they may also give rise to problems in the educational system. The findings of the fourteen studies confirm this point.

Findings

Public examinations have three main functions: certification, selection and accountability. While most examinations serve all three to some extent, selection is undoubtedly the main function. The paramount importance of selection is reflected in the large numbers each year who are not promoted to the next highest level of the educational system. There is also a growing tendency to use a single examination for purposes of both selection and certification of level of attainment.

Students in virtually all of the systems take public examinations at the end of primary, first cycle secondary and second cycle secondary school. Candidates for primary-school leaving certificate examinations in most countries far exceed those taking secondary school examinations. Countries in Francophone areas tend to require their students to take more formal examinations than those in Anglophone areas; most often they also offer term, end-of-year and *concours* (competitive selection) examinations.

Setting of examinations seems a rather haphazard exercise, with some notable exceptions. In some instances, a final selection is simply made from a pool of questions submitted by teachers. Most of the examinations reviewed show serious weaknesses. Very little use is made of school-based assessment.

Most scoring (or correction) of public examinations is carried out by teachers, though a relatively small number of systems use optical scanning and/or computer equipment. Two countries (Ethiopia and Swaziland) have had to abandon optical scanning.

The important issue of marker reliability does not appear to have been addressed in most countries, though it should be, given the seriousness of the decisions made on the basis of examination performance.

Pass rates tend to be low. In some instances the pass rate is determined by the number of places available at the next highest level of schooling. Data on pass rates should be interpreted with caution. For example, quota systems are sometimes used to attain national objectives such as equality of male and female pass rates. Pass marks from region to region within countries may vary in an effort to ensure regional equality of opportunity.

Public examinations undoubtedly exert enormous pressure on activities in schools. Teachers tend to gear teaching to the tests to be taken and to ignore material not featured in such tests, even if it is mandated in the official curriculum.

Most of the questions in public examinations tend to measure students' ability to recall facts. Relatively little attention is given to higher-order cognitive skills such as those involved in synthesis or evaluation. Examination content tends also to be academic in nature; life outside of school seldom features in examination questions. In most countries, particularly those of Francophone tradition, examinations are of the written essay or oral type. Other forms of assessment (multiple-choice, project, practical, or aural) are less frequently used.

Whereas Ministries of Education administer public examinations in Francophone countries, independent or semi-independent examination boards generally fulfil this function in Anglophone countries. In a small number of countries, universities have responsibility for the secondary-school leaving examination.

For examinations run by Ministries of Education, fees are generally not charged at the primary level. However, Anglophone countries are more likely to charge fees. Most systems charge fees for secondary school leaving examinations; fees can be very high in some cases.

Concern over security is a conspicuous feature of most systems. Legal provision for breaches of security vary.

Examination results are seldom used to provide useful feedback to schools, administrators or curriculum bodies. Thus, a good opportunity to effect change is little exploited.

Issues

To date, not enough attention appears to have been focused on the educational consequences of existing examination systems. However, the likely impact of changing present systems needs to be studied carefully, given the experience with public examinations in non-African settings.

It must be appreciated that however excellent a test is in terms of validity, reliability, and efficiency, the pressure on students to perform will remain substantially unchanged while lack of places at the next highest level persists. Where such bottlenecks exist, it is naive to think that teachers will not attempt to gear teaching to testing, or that students will not seek outside help to enable them to advance to the next level.

In this context also, it must be emphasized that the high repetition rate attributable to "failure" may represent a serious waste of scarce educational resources.

The need for definition and implementation of language policies by governments is urgent, and in that regard, decisions are required on the most appropriate languages to be used in public examinations. In most countries the present emphasis on French and English has probably contributed to low pass rates.

Clearly, practical subjects and school-based assessments will tend to receive little emphasis until they are incorporated into public examinations. These types of assessment, however, are time-consuming, expensive, and difficult to moderate.

Efforts to localize (or nationalize) examinations, following long experience with systems such as those offered by the University of Cambridge Local Examination Syndicate, run the risk of undermining public confidence in the examination system.

likely impact of such tests on the vast majority of students who may not proceed to the next highest level must be considered.

Publication of school results and national rankings are designed to provide "incentive information," a form of public accountability expected to motivate schools. Cognizance should also be taken, however, of the many factors (e.g., socio-economic) other than teaching effort and quality elements that affect examination performance.

Efforts to modernize the processing of examination data should take into account the level of technical support available and particularly the extent to which foreign currency is likely to be available for procurement of required equipment, materials, and expertise.

Recommended Improvements

It is clear that a public-examination system can exert a highly positive influence not only on the nature of assessment, but much more importantly on the nature of teaching and learning. While examinations cannot change the educational system, they can be made to reflect the objectives of curriculum developers and educational planners. The following recommendations are offered:

1. Examinations should reflect the full curriculum, not merely a limited aspect of it.
2. Higher-order cognitive skills should be assessed to ensure they are taught.
3. Skills to be tested should not be limited to academic areas but should also be relevant to out-of-school tasks.
4. A variety of examination formats should be used, including written, oral, aural, and practical.
5. In evaluating published examination results and national rankings, account should be taken of factors other than teaching effort.
6. The number of public examinations should be reduced to help diminish repetition and dropout rates and the inevitable sense of failure experienced by students.
7. The amount of time teachers spend on testing and preparing for public examinations should be lessened to provide more time for teaching.
8. Detailed, timely feedback should be provided to schools on levels of pupil performance and areas of difficulty in public examinations.
9. Predictive validity studies of public examinations should be conducted.
10. The professional competence of examination authorities needs to be developed, especially in test construction.
11. Each examination board should have a research capacity.
12. Examination authorities should work closely with curriculum organizations and with educational administrators.
13. Regional professional networks should be developed to initiate exchange programs and share common interests and concerns. An example is the Association of Heads of Institutions Responsible for Examinations and Education Assessment in East and Southern Africa.
14. A post-graduate degree course should be established in an African country for examination authority personnel.

Finally, while implementation of the above can effect improvement, it should be recognized that other factors such as availability of places, language of instruction and assessment, amount and quality of literacy materials and quality of teaching, together with examinations, will play critical roles in improving the quality of education.

2 The Need for Reform in African Education

After a period of massive expansion, education in many African countries has, during the last decade, encountered a series of problems. While demand remains high, progress towards universal provision at the primary level and expansion at the secondary level has slowed, mainly because of a shortage of money. More limited financial resources than had been available in the past are being spread more thinly over increasing numbers of students (Fuller 1986; World Bank 1988). Given this situation, the choice for policymakers, for at least the remainder of this century, would appear to lie either in increased efficiency in the use of existing resources or in the acceptance of declining standards of access, equity, and scholastic achievement (Windham 1986).

In this chapter, we outline some current concerns about education in Africa. Proposals to address these concerns relate to a variety of actions—the provision of books and equipment, teacher training, enlisting the support of children's homes, and improving the nutritional status of children. Our concern is with the possible role of public examinations, a well-established feature of African educational systems, in improving educational achievement.

Growth in Education

Africa has the lowest primary, secondary, and university enrollment rates of any world region (Nafziger 1988). This is so despite the fact that educational systems throughout the continent expanded rapidly in the 1960s and 1970s. For example, between 1960 and 1983, the number of primary-school pupils in Sub-Saharan Africa increased by well over 400 percent, from 11.85 to 51.35 million. Gross enrollment ratio over the same period rose from 36 to 75 percent (World Bank 1988). At secondary level, the increase, at 1,400 percent, was even greater. Student numbers rose from .79 to 11.12 million and gross enrollment ratio from 3 to 20 percent (World Bank 1988).

Despite massive expansion, the discrepancy between provision at primary and secondary levels remained great. The percentage of students in Sub-Saharan countries who transferred from the last grade of primary school to the first grade of secondary general education in 1983 was 43 (World Bank 1988). This figure has a particular relevance to examinations because they are used to control the flow of students at this juncture, as well as at other points, in the educational system. The success or failure of a student at any of the important selection points in the system can have very serious consequences for his or her educational and occupational future. It is precisely because of their role as gatekeepers in educational systems, in that the number of places diminishes as one ascends the educational hierarchy, that examinations have acquired the importance they possess in African countries.

Educational growth in Africa has slowed, and in some countries has stagnated or actually declined, in recent years. This has been attributed largely to poor economic conditions that were aggravated, in the first instance, by the oil crisis in the 1970s and, more recently, by increasing levels of debt-repayment obligations (Windham 1986). Total public expenditure on education in Africa declined from $10 billion in 1980 to $8.9 billion in 1983, while per-pupil expenditure, both in absolute terms and as a proportion of gross national product, declined markedly at both primary and secondary levels (World Bank 1988).

There are a number of reasons why the educational systems of Africa are particularly vulnerable to economic circumstances and the conditions of government finances. First, the role of the public sector in financing education is a major one. In 1983, for example, 85.4 percent of primary students and 85.1 percent of secondary students were in public schools. The proportion for Francophone countries was larger than for Anglophone countries (World Bank 1988). Second, state subsidies are large, as fees for public education recover only 5.7 percent of the cost of primary education, 11.4 percent of the cost of secondary education, and 1.9 percent of the cost of higher education. Third, because of the low level of gross national product (GNP) in many African countries, the cost of public education for one student as a percentage of per capita GNP is higher in Africa than in any other region (Mingat and Psacharopoulos 1985; Nafziger 1988; Unesco 1990, Table 19).

Although resources are limited, and even diminishing, school-age populations are increasing rapidly. During the past twenty years, over 50 million new pupils enrolled in school throughout the continent, and it is expected that the number that will become eligible in the next twenty years will be 110 million (Windham 1986). In addition, the demand for educated manpower to support economic growth is likely to grow, putting pressure on governments to expand educational facilities. Moreover, many countries made commitments following independence to provide education for social as well as for economic reasons (see, for example, Swaziland, Ministry of Education 1986; Tan 1985; Zambia, Ministry of Education 1977). Attempts to meet these commitments can be expected to contribute to the growth in numbers attending school.

Concern with Quality

Side by side with the problems of decreased financial resources and stagnating enrollments, commentators in a number of African countries, as in countries elsewhere throughout the world (see Heyneman and White 1986), have expressed concern about a decline in quality of the education being offered in schools (see, for example, Evaluation Research of the General Education System in Ethiopia - ERGESE, 1986; Kelly 1991; Zambia, Ministry of Education 1977). Although many countries now collect educational statistics, for example on participation rates, on a fairly routine basis, evidence relating to the quality of provision or of output is more difficult to come by. There is some evidence of decline in the quality of provision. Supplies of key inputs, especially books and other learning materials, are reported to be critically low in many countries (World Bank 1988). Concern has also been expressed about decline in quality of output (as measured, for example, by student achievement). Such concern is based for the most part on impressionistic evidence, evidence, of course, that should not be ignored. The available empirical evidence on a decline in standards, however, is far from satisfactory. While the International Association of the Evaluation of Eduactional Achievement (IEA) studies of achievement in mathematics in Nigeria and Swaziland have been cited as evidence of declining standards (World Bank 1988, p. 33), these studies do not tell us anything about change as they were carried out on only one occasion.

Examination performance over time is a possible source of evidence regarding changing standards (see Kahn 1990). However, the characteristics of students taking an examination as well as the standard required to achieve a particular grade in an examination, particularly if a predetermined proportion of students is assigned to each grade, may vary from year to year. Thus, knowledge of the numbers achieving particular grades over time does not permit unambiguous inferences about changes in standards. It is worth noting, however, that in Swaziland, pass rates increased on the Cambridge Overseas School Certificate (that was controlled by the Cambridge Syndicate) from 36 percent in 1980 to 54 percent in 1988. There was an even greater increase in the percentage of first and second-class passes. It is of interest, in the context of the present report, that the improvements have been attributed to strategies (that were implemented between 1984 and 1987) designed to increase the competence of inspectors and teachers in the assessment of students (Lulsegged 1988). It is also of interest that the nature of student assessment in Swaziland, even before the efforts to improve it, may have differed from that in other countries. An analysis of IEA data, that were collected in Nigeria and Swaziland in 1980-81, indicates that time spent by teachers in monitoring and evaluating student performance was positively associated with achievement in Swaziland but not in Nigeria (Lockheed and Komenan 1989). The Swazi data, however one interprets them, do seem to contradict the general perception of declining standards of achievement in African schools, underlining the need for more systematic empirical evidence relating to standards of achievement over time.

Strategies to Improve Education

Because of the perceived need in many countries not just to maintain standards of access, equity, and academic achievement but to improve them, a number of strategies have been considered for educational reform (see Fuller 1986; Fuller and Heyneman 1989; Hallak 1990; Heyneman 1985, 1987; Mingat and Psacharopoulos 1985). The World Bank (1988) has shown a particular interest in this problem and has identified three major areas to be considered in the formulation of policy:

(1) Adjustment to current demographic and fiscal realities, that will require: (a) diversification of sources of finance (in the form of increased cost sharing in public education and encouragement of nongovernmental suppliers of educational services); and (b) unit-cost containment, that will be of greater importance than cost sharing in countries in that the scope for cost sharing is negligible or non-existent. One aspect of the organization of education that could contribute to unit-cost containment would be a reduction in the amount of grade repetition.

(2) Revitalization of the existing educational infrastructure, that will include: (a) a renewed commitment to academic standards (principally by strengthening examination systems); (b) restoration of an efficient mix of inputs in education (especially increasing the amount of textbooks and other learning materials); and (c) greater investment in the operation and maintenance of physical plant.

(3) Selective expansion, that will be viable only after measures of adjustment and revitalization have begun to take hold and will involve: (a) renewed progress towards the long-term goal of universal primary education; (b) the development of alternative ways of delivering educational services (including distance education); (c) training for those who have entered the work force in job-related skills; and (d) research and postgraduate education.

In a document adopted by the World Conference on Education for All, that was convened jointly by the executive heads of the United Nation's Children's Fund (UNICEF), United Nations Development Programme (UNDP), Unesco, and the World

Bank; and was held in Jomtien, Thailand, from March 5 to 9, 1990, the emphasis on basic education and the achievements of students who receive that education is again evident. Article 3 of the *World Declaration on Education for All* (1990) states that "Basic education should be provided to all children, youth and adults" (p. 4). Recognizing that the provision of such education is only meaningful if people actually acquire useful knowledge, reasoning ability, skills, and values, Article 4 of the Declaration states that the focus of basic education must be "on actual learning acquisition and outcome, rather than exclusively upon enrolment, continued participation in organized programs and completion of certification requirements" (p. 5).

Examinations and Reform

The idea that examinations may have an important role to play in effecting a reform in education in developing countries arises from the belief that they exercise a strong influence on what is taught in schools and can be used as instruments of accountability. It can also be argued that they provide a relatively simple means of controlling a system in that resources for other means of control, such as school inspection and teacher training, are limited and in that students attend private schools and non-formal educational establishments as well as public schools.

Effects of Examinations on Curricula

What evidence do we have that examinations affect curricula and teaching in schools? Perhaps the most striking example of how an assessment procedure can affect the content and skills covered in a curriculum is to be found in an anecdote of a person who carried out research on the selection and training of U.S. naval personnel during the second World War (Fredericksen 1984). This person found that the best tests for predicting grades given by instructors were written verbal and reading comprehension tests. This did not seem to make much sense given the tasks that gunners were supposed to do, such as maintaining, adjusting, and repairing guns. On examining what went on in training, the researcher found that classes consisted of lecturing and demonstrating how to use equipment, rather than having students do the actual tasks themselves. He then designed performance tests in that students were required to demonstrate competence by, for example, removing and replacing the extractor plunger on a 5 /38-inch anti-aircraft gun. Few of the students could perform the tasks.

New students soon found out what the new performance tests were like and began practicing the assembly and disassembly of guns. The instructors also moved from lecturing to more practical work with guns and gun mounts. At the end of the course, students performed very much better on the performance tests than students who had experienced the older instructional method. Further, the predictive validity of the verbal and reading tests dropped while the validity of the mechanical aptitude and mechanical knowledge tests improved.

The interesting point of this anecdote is that no attempt was made to change the curriculum or teacher behavior. The dramatic changes in curriculum and achievement came about solely through a change in testing.

In the day-to-day workings of schools, the effects of assessment on curricula and on student achievement are not so dramatic. However, there can be little doubt that examinations, to which high stakes are attached, exert considerable influence on what goes on in schools (Fredericksen 1984; Madaus and Kellaghan, in press). Those involved in an educational system that has such examinations will attest to the fact that the topics that teachers and students attend to in class and in study are the topics that are likely to appear on examination papers.

One commentator has concluded that since examinations represent "the ultimate goal of the educational career, they define what are the important aspects of a school curriculum and they dictate to a large degree the quality of the school experience for both teacher and student alike" (Little 1982).

If the examinations are good, this might be a satisfactory situation. If the objectives and skills to be measured are carefully chosen and if the tests truly measure them, then the goals of instruction will become explicit and well-defined targets for teachers and students on that they can focus their efforts. Furthermore, the examinations will provide students and teachers with standards of expected achievement. Given this situation, there should be no reason why students should not work for marks, and good reasons why they should (Fredericksen 1984). In practice, however, examinations may lack "construct validity" or, for other reasons, may not meet the high standards that would justify teachers and students devoting their efforts to performing well on them.

Quality of Examinations

Evidence from many countries throughout the world over the past century suggests that public examinations suffer from a variety of defects (Madaus and Kellaghan, in press). In African countries, defects of examinations have been pointed out on numerous occasions, in both official and unofficial reports. First, most examinations, at both primary and secondary level, are limited to pencil-and-paper tests and so ignore a variety of skills that cannot be measured in this way. Second, examinations emphasize the achievement of scholastic skills (particularly language and mathematics at the end of primary schooling) paying very little attention to more practical skills. Third, in most examination questions, the student is required to recall or recognize factual knowledge, rather than to synthesize material or apply principles to new situations. Fourth, many examinations contain very little reference to the everyday life of students outside the school, dealing with scholastic topics and applications for the most part, rather than, for example, trying to find out if a student can use money in the market place. Fifth, the quality of actual items used in tests is often poor (see Cambridge Educational Consultants 1988; ERGESE 1986; Kelly 1991: Lesotho 1982; Little 1982; Myeni 1985; Oxenham 1983).

If schools gear their teaching to such examinations, then they are unlikely to be very successful in developing in their students the kind of knowledge and skills that most people would regard as desirable—skills of observation, problem identification, problem-solving and reasoning, and particularly knowledge and skills that can be applied in the day-to-day life of the many students who will have only minimal exposure to formal education (see National Commission on Testing and Public Policy - NCTPP, 1990; Nigam 1982). Rather, the effect of such examinations, as was observed in Ghana, is likely to be "to support and encourage rote-memorization, routine drilling, bookishness" (Brooke and Oxenham 1984, p. 158). Indeed, the view was expressed in a government report in Lesotho (1982) that many problems with curriculum and instruction seem to stem from

> . . . .the inordinate emphasis given to the preparation for terminal examinations which undermines the attainment of certain objectives that are critical to the country's economic development. . .
> The JC [Junior Certificate] examination heavily emphasizes the accumulation of factual knowledge and neglects general reasoning skills and problem-solving activities" (p. 94).

In Ghana, Brooke and Oxenham (1984) have noted that teachers tend to neglect nonexamination subjects even though the official timetable might require that allocation of time be adhered to strictly. Teachers even pick topics within subjects according to whether they judge them as likely or not to appear in examinations. The same phenomenon has been observed in Uganda, where neglect of the teaching of practical skills, especially at the primary level, and the consequences of this for students on leaving school have been noted (Uganda, Ministry of Education 1989). In such situations, the effect of examinations can be inhibiting, serving to distort or prevent learning rather than to promote or facilitate it (Heyneman and Ransom 1990; Little 1990).

The use of examinations that were set and marked outside of African countries probably contributed to the perpetuation of the situation in that examinations took little cognizance of the conditions in that students lived and were likely to live in the future (Kellaghan 1991). As late as 1981, the school-leaving certificate examinations in seven African countries were set and marked by the University of Cambridge Local Examinations Syndicate (Bray, Clarke, and Stephens 1986), a situation that has now changed. Since preparation for examinations was important in schools, we might expect that the examinations contributed significantly towards the maintenance of a western academic education. The examinations also, of course, contributed to the maintenance of standards and acceptance of certification at the international level, important considerations in developing countries.

The setting up of local examination boards did not result in a sudden break with the traditions of the colonial system in the content of curricula or examinations or in modes of examining. For example, the West African Examinations Council was set up in 1951 to serve the Gambia, the Gold Coast, Sierra Leone, Nigeria, and later Liberia, as a local independent body. However, in its 1980 Advanced-level English Literature syllabus, only six of 39 authors named were African, and only three of these were West African. As well as studying Shakespeare, students had the option to study the poetry of Chaucer, John Donne, and George Herbert. The Senegalese Baccalaureat offered examinations in ten languages, none of them African (Bray, Clarke, and Stephens 1986).

While examinations at the primary level are controlled locally in all countries, foreign influences are to be found in curricula and examinations at this level also. In a study of the national primary-certificate examinations of ten Anglophone countries, Hawes (1979) found that, in 1978, five used only the English language, a further four used English in all papers except in the one examining the local language, and only one used a local language as the main examining language. Reliance on English in these cases invariably reflects the fact that there are several, in some cases a great many, local languages, none of that is spoken throughout the country. In linguistically heterogeneous situations, learning and being examined in a metropolitan language is perceived to favor no particular group. Furthermore, the use of metropolitan languages, such as English and French, is seen as conferring benefits, particularly on those who are likely to proceed to third-level education (Eisemon 1990). However, the advisability of teaching and examining through English or French students who have poor proficiency in the language and who rarely if ever use the language outside school is something that has been questioned many times. Students with limited knowledge of a language will inevitably be handicapped in the acquisition of knowledge and skills presented in the language as well as in their ability to demonstrate in examinations the knowledge and skills they have acquired (Eisemon 1990).

A further problem with many external-examination systems in Africa is that their primary use is to control the flow of students through the educational system. This use is understandable, and the selection function of examinations will no doubt continue to be important as long as there is a shortage of places at higher levels of educational systems. However, there are a number of dangers inherent in focussing on the use of examinations for selection. First, the examinations will tend to be geared to the needs of pupils who are doing relatively well in the system while the needs of lower achieving students may not be adequately met. And, second, it is likely that the examinations will focus on academic topics. In the early 1970s, the ILO (1972), in a comment that could have been applied to the educational systems of many African countries, noted that, in Kenya, most primary curricula and examinations ignored the needs of terminating students.

To help avoid such undesirable effects in constructing examinations, it is important to keep clearly in mind the need for certifying the achievements of all students, as well as the need for selection. Further, cognizance should be taken of the motivational effect of examinations on students and the influence of examinations on what is taught and emphasized in schools. Examinations that are designed for only the top 20, 30, or even 50 percent of students and the curricula that prepare students for such examinations are likely to be seen as irrelevant to lower-achieving students.

Role of Examinations in Reform

Given the importance of public examinations in educational systems, to an extent that a school's success may be "judged strictly by the performance of its students in the examinations" (Fafunwa 1974, p. 193), it is not surprising that the role of examinations has received particular attention in the context of the problems facing education in Africa today. For some observers, external public examinations are perceived as contributing to the problems, while others see a role for examinations as part of a possible solution. Those who perceive examinations as part of the problem cite the evidence considered above concerning the inadequacy of examinations. If examinations serve to distort or prevent desirable learning, it might not seem unreasonable to conclude that public examinations should be abolished. Together with this view, it is usually proposed that a system of school-based assessment should be installed in place of external examinations.

An alternative view is that since there is a lack of the resources that would be needed to introduce alternative assessment procedures, for example school-based assessment, to the educational systems of most African countries and since the need for selection will continue in the foreseeable future, it would appear to be unrealistic to talk of dispensing with present examination systems. This view also recognizes that examination systems in Africa are perceived by many to be relatively fair and impartial and that they also serve to legitimate the allocation of scarce educational benefits. Before an alternative system could be introduced, it would be necessary to demonstrate that it could fulfil this task equally well. It is also argued that examinations, if properly designed, could have a beneficial effect on the quality of education in schools. Because of the high stakes associated with examinations in terms of student opportunities and teacher accountability, changes in examinations would most likely be reflected in changes in educational practice in schools. If the changes involve improving the quality and scope of examinations, these in turn should result in improving the educational experiences of students in schools (Heyneman 1987; Heyneman and White 1986; McNamara 1982). In Little's (1984) words, examination improvements could help turn the educational system into one "which encourages, rather than stultifies, desirable outcomes" (p. 228). Again, Little (1982) argues that "the quality of the examination system itself can have a considerable impact on the quality of skill formation encouraged by the education system, that skills in turn could have a considerable impact on the inputs to the labor market" (p. 177).

The possible role of examinations in educational reform has been considered in a number of policy documents. In the World Bank (1988) strategies outlined above, the need to strengthen examination systems in the interest of raising academic standards is specifically mentioned in the context of revitalizing the existing educational infrastructure. Further, examination and assessment systems could be rationalized and made more efficient; this seems important at a time when numbers taking examinations are showing large increases in many countries. Again, assessment procedures could be used in a formative way to guide instructional and learning processes in schools to reduce dropout rates and grade repetition. In their important role in educational selection, examinations could contribute to greater efficiency in the educational system by identifying students most likely to benefit from further education. Finally, in future expansion of educational systems, examination and assessment procedures could be assigned an important role in the provision of feedback information to schools on student achievement levels. They could also have an important role in ensuring comparability of standards between school-based and non-school-based candidates, if non-school-based ways of delivering educational services are developed further.

The fact that systems of examinations and assessment can be used for a variety of purposes should not be taken to imply that a single system of examinations or assessment can readily serve all purposes equally well. For example, an examination system that efficiently selects the pupils most likely to benefit from further education might contribute to the identification of a technical elite and over time might even have important effects on the economic performance of a nation (Heyneman 1987). However, such a system could have serious and damaging effects on the educational experiences of many students if it ignores the fact that for many students—in fact the majority—learning has to have utility beyond that of qualifying individuals for the next level of education (World Bank 1988). Thus, a procedure that most efficiently selects students may be inadequate for certification purposes. Similarly, a procedure that is adequate for certification is unlikely to be the most appropriate one for monitoring the quality of performance of a school or of the educational system in general.

In considering examination reform, it is important to bear in mind the different functions of examinations and the many possible effects of examination systems on schools, teaching, and learning. It is also important to realize that in selecting the specific innovations most likely to fulfill a country's requirements, insofar as is possible, effects should be anticipated and judged as desirable or undesirable in the context of the general goals and aims of each country's own educational system (Eckstein and Noah 1988; Heyneman 1987). We shall return to these issues in Chapter 5.

Efforts to reform curricula and examinations are already in evidence in a number of countries. For example, a program of curriculum reform has been carried out in Lesotho. Syllabi in the core subjects (Sesotho, English, Science, Mathematics, Social Studies) have been designed and disseminated. Syllabi comprise units, specific objectives, suggested activities, skills and concepts to be learned by students, and resource materials. Side by side with these activities, skills checklists for Sesotho, English, and Mathematics (Standards 1-3) and sample test question booklets in English and Mathematics (Standards 4-6) have been constructed to reflect the new curricula.

Initiatives in Kenya have been more obviously directed towards the use of examinations to improve the quality of learning in schools. In these initiatives, that have been reported by Somerset (1987, 1988), the content of the public examinations at the end of primary schooling was changed and a system to provide feedback information to the public and to schools was introduced. The reform in the content of examinations involved the inclusion of a much broader spectrum of cognitive skills than had previously been included in examinations, skills designed to measure comprehension and application, as well as skills that could be applied in a wide range of contexts, in and out of school. This was done in recognition of the fact that examinations should not be confined to the measurement of students' ability to memorize factual information but should also promote the teaching and learning of competencies that would be useful not only to those who stay in school but also to the majority who would leave after the examination. Little (1984) has described the changes between 1971 and 1979 in the distribution of items designed to test knowledge, comprehension, and application in the Certificate of Primary Education in Kenya as "dramatic."

In the feedback system in Kenya, lists of schools were published that reported the overall mean of the performance of students in each school on the examination. Mean standard scores for each district in the country were also published. This was described as "incentive information." "Guidance information," based on an analysis of the performance of students nationally on individual questions, was also provided in a newsletter that was sent to schools. The newsletter explained changes in the content and skills covered in examinations, identified topics and skills causing problems, and suggested ways of teaching these topics and skills. The incentive information was first published following the 1976 primary-school certificate examination although the information did not receive wide publicity until after the 1978 examination. The first full-length newsletter was based on the 1978 examination results.

Only limited information is available regarding the impact of these procedures on school practice or student achievement. At the time he prepared his report, Somerset (1987) indicated that relevant data on teaching methods and content had not been collected. He did, however, provide information on changes in the relative mean scores of districts throughout the country between 1976 and 1981. He attributed changes in these scores between 1976 and 1979 mainly to the impact of the incentive feedback system. If that is correct, then the impact was negative since mean performances between districts, that it had been hoped would narrow, substantially widened during the period. In the following two years, during which guidance information was available, the trend was reversed and some districts in which mean scores had been relatively low improved their positions. It may be that guidance information contributed to this improvement, but any firm conclusions about the effects of any of the changes in the examinations system are not possible on the basis of the available information.

Since students' test performances on the primary-certificate examination each year were converted to standard scores derived from a distribution with a mean of 50 and a standard deviation of 15, inferences cannot be drawn about possible trends in student achievement over time. Yussufu (1989), however, has stated that the performance of candidates on the Kenya Certificate of Primary Education Examination (KCPE), first introduced in 1985, "has, in general terms, shown a steady consistent improvement." This conclusion is presumably based on changes in students' raw scores. Information about the nature or extent of the changes, however, is not provided.

Neither is information available on other possible effects of the examination and reporting systems, though we might expect effects on, for example, retention, repetition, and dropout rates in schools.

Eisemon, Patel, and Abagi (1987) observe that the introduction of new question items on the primary-school leaving examination in Kenya has not, in their opinion, changed primary-school instruction "in ways in which greater emphasis on problem solving, reasoning and explanation can be discerned." They stress the need to build examinations in accordance with cognitive theories of the measurement of achievement if the examinations are to have a beneficial effect on school practice. They studied the impact of examinations that had been constructed in accordance with such a theory on instruction and learning in a Nairobi primary school. The study is limited in its scope in a number of respects: it is confined to one school; it deals only with health education; and it was carried out under experimental conditions. Thus the findings might not apply in the normal circumstances under which examinations are administered. In some instances examination items assess pupils' abilities to integrate existing and new knowledge. These items are explicitly related to the competent performance of target behaviors. Because of this deliberate structuring of items, teachers' explanatory behaviors and their emphasis on procedures to foster pupil understanding will improve. On the basis of this study and of their consideration of reform efforts in Kenyan education, Eisemon and others (1987) conclude that:

> Psychometric manipulation of examination items in the absence of more research into instructional and cognitive processes may produce better tests and different teaching, but this will not necessarily make schools any more effective especially insofar as fostering outcomes like better health are concerned.

How precisely examinations might contribute to the improvement of education in ways that everyone regards as desirable is not clear. Is it, for example, necessary to build tests in accordance with cognitive theories of the measurement of achievement, as Eisemon and others suggest? While such an approach might be helpful, though its limitations must also be recognized in light of our poor understanding of the process of achievement measurement, it would hardly seem to be necessary. Insofar as we know, no such theories guided the work of the person involved in the measurement of the performance of the young navy personnel in Fredericksen's study (1984), described above. Even if construction of a test along certain principles is more likely to assist in student learning than a test that does not follow those principles, we know very little about the mechanism that can translate experience of examinations and knowledge of results (that might be in the heads of students, teachers, parents, or administrators) into higher student academic achievement. So long as that is so, we should be circumspect in our recommendations about the use of examinations in the interest of raising student achievement. Actions based on decisions taken on an *a priori* basis, and without the benefit of conceptual analysis and empirical evidence, run the risk of being at best ineffective and at worst damaging. Because of this, we emphasize the need to consider possible problems and undesirable effects that can arise when examinations are used to direct the activities of teachers and students. We consider these problems in Chapter 5 after we set out guidelines relating to the improvement of examinations.

3 The Educational Systems of Fourteen Countries

Countries in the Study

In this report, we are concerned with the examination systems of fourteen African countries. While many of these countries experienced a variety of colonizers (Arab, Belgian, British, French, German, Italian, and Portuguese), they are sometimes categorized in terms of the European language that in addition to local languages, is used in the country today. Using this criterion, six of the countries can be described as Anglophone (Kenya, Lesotho, Mauritius, Swaziland, Uganda, and Zambia); six as Francophone (Chad, Guinea, Madagascar, Mauritania, Rwanda, and Togo); while two fall into neither of these categories (Cape Verde, Ethiopia).

At the outset, it has to be recognized that great variation exists among (and often within) the countries that were studied for this report. They range in population from less than a million (Cape Verde, Swaziland) to over 40 million (Ethiopia). They also vary considerably in size, from less than 2,000 square kilometers (Mauritius) to 1,222,000 square kilometers (Ethiopia). Eleven of the countries fall into the World Bank (1990) low-income category and three into the middle-income category. Economic differences are reflected in annual per capita GNP that ranges from $110 (in Ethiopia) to $790 (in Swaziland) and $1,090 (in Mauritius) (Table 2.1). Even these figures may underestimate the extent of poverty in countries (Swaziland, Ministry of Education 1985). Since they are based on the monetary assessment of activities related to the modern sector of the economy (that in many cases relies heavily on foreign capital), they throw

Table 2.1
POPULATION, AREA, AND PER CAPITA GNP OF STUDY COUNTRIES, 1984

Countries/ linguistic status	Population (millions)	Area (thousands of square kms)	Per capita GNP ($)
Anglophone			
Kenya	19.5	583	310
Lesotho	1.5	30	530
Mauritius	1.0	2	1,090
Swaziland	0.7	17	790
Uganda	15.0	236	230
Zambia	6.4	753	470
Francophone			
Chad	4.9	1,284	
Guinea	5.9	246	330
Madagascar	9.9	587	260
Mauritania	1.7	1,031	450
Rwanda	5.8	26	280
Togo	2.9	57	250
Other			
Cape Verde	0.3	4	
Ethiopia	42.2	1,222	110

Source: World Bank (1988), except for Cape Verde, for which Unesco (1988) data for 1985 are used.

little light on the standard of living of the majority of the population who in all the countries live in rural areas and are engaged in the traditional sector of the economy, that is mainly agriculture.

Some of the countries are ethnically and culturally fairly homogenous; others are very diverse. In some countries, for example, a single language is spoken by most of the population (Cape Verde, Lesotho, Madagascar, Swaziland). In others, and this is the more common situation, a diversity of languages and dialects is in use (see World Bank 1988).

Differences among countries, that we will again advert to when considering the educational and examination systems of the countries, are outlined here to draw attention to the fact that any general conclusions reached in this report will have to be adapted and interpreted within the context of the particular circumstances of each individual country.

Current Size and Participation Rates of Educational Systems

Twelve of the fourteen countries included in our survey have either twelve or thirteen school grades altogether; one has eleven and one has fourteen. All the systems are divided into primary and secondary sectors. At the primary level, one country has five grades, seven have six grades, four have seven grades, and two have eight grades. At the secondary level, one country has four grades, four have five grades, five have six grades, and four have seven grades (Appendix 1).

Kenya has the largest number of pupils in primary schools followed by Ethiopia, Uganda, Madagascar, and Zambia (Table 2.2). In 1986, the gross primary enrollment ratio of the countries varied from 29 percent (Guinea) to 115 percent (Lesotho) (Table 2.2). The gross enrollment ratio for six of the countries exceeded 100. Figures over 100 percent can be attributed to the relatively high number of over-age pupils in primary school. The percentage of primary-school students who were female ranged from a low of 28 percent (Chad) to a high of 56 percent (Lesotho).

Relatively small numbers of students advance to secondary school. In all but three countries, the gross enrollment ratio at the secondary level was less than 25 percent in 1986. Ratios at the secondary level exceeded 20 percent in only five of our study countries (Lesotho, Madagascar, Mauritius, Swaziland, Togo). Female participation was lower at the secondary than at the primary level. In nine of the fourteen countries, females constituted less than 40 percent of total enrollment (Table 2.2). Lesotho is the only country in which the number of female secondary-school students was greater than the number of males. The ratio of primary to secondary pupils was particularly large in a number of countries, most notably Rwanda (43:1), Uganda (12:1), Kenya (11:1), Zambia (9:1), and Lesotho (8:1). Clearly, for the vast majority of pupils, formal education can be equated with primary schooling.

Concern with Quality of Provision

In recent decades, in each of the fourteen countries reviewed, the challenge for Ministries of Education was to provide schools and teachers for a dramatically increasing population. To date, the emphasis appears to have been on quantity rather than on quality, with the result that concern has been expressed with many aspects of the quality of educational provision. In many countries, teacher morale, for instance, appears to be low. In Ethiopia, one study reported that 40 percent of primary and 76 percent of secondary teachers would, if given the opportunity, abandon the teaching profession (ERGESE 1986). In Lesotho in 1988, 805 teachers and almost 55,000 pupils had no shelter. In four of the fourteen countries, class size has increased between 1983 and 1986. The pupil-teacher ratio in Mauritania has gone from 24:1 (1970-71) to 50:1 (1986-87). Class sizes as large as 120 have been reported for Togo. In many instances, attendance rates are poor. Children may be absent to help their parents either in the home or with planting or harvesting.

Table 2.2

ENROLLMENT AND PARTICIPATION RATES

Countries/ linguistic status	Primary			Secondary		
	Number (000s)	% female	Gross enrollment ratio	Number (000s)	% female	Gross enrollment ratio
Anglophone						
Kenya	5124*	49*	96*	540*	40*	20
Lesotho	330*	56	115	39	60*	24
Mauritius	145	49	107	71	47	51
Swaziland	142	50	105	32	50	42
Uganda	2204	45	68	187	33	9
Zambia	1366	47	96	145	37	18
Francophone						
Chad	341	28	43	44	16*	6
Guinea	270	31	29	77*	25*	15*
Madagascar	1492*	48	124	357*	44	42
Mauritania	157*	40*	51	37*	30*	16
Rwanda	904	48	65	21	34	3
Togo	511	38	102	78*	24	21
Other						
Cape Verde	66*	49	108	7*	30*	14
Ethiopia	2884*	39	38	843*	39*	14

Source: World Bank (1990).

* Updated in national report.

In its policy study, *Education in Sub-Saharan Africa*, the World Bank (1988) concluded that "... the safest investment in educational quality in most countries is to make sure that there are enough books and supplies" (p. 4). Other studies have shown that, in the case of developing countries, factors such as school facilities, textbook availability, and teacher training account for a large portion of the variation in student achievement (Eisemon 1988; Fuller 1987; Heyneman and Loxley 1983).

Resources that are lacking include such basic items as desks and chairs as in Togo. Many of the national reports commented on the lack of basic materials, most notably textbooks. In Madagascar, up to ten students share a textbook. Over a sixteen-year period, education in Guinea was conducted practically without any textbooks. Many textbooks used in Cape Verde are produced in Portugal, primarily for the home market, and do not provide an adequate coverage of the official local syllabus. In Kenya and Madagascar, as well as in other countries, basic science equipment is either in short supply or, in some instances, is nonexistent in secondary schools.

Resource availability has implications both for the format and functioning of public examinations. In particular, practical examinations in subjects such as woodwork, metalwork, and home economics require basic materials, not alone at examination time but also during the school year. Lack of appropriate resources is one of the main impediments to the introduction of more appropriate forms of assessment (essay, practical, oral, and aural) in Ethiopia. Problems have been experienced in Chad and Swaziland, as well as in other countries, in the acquisition of equipment for practical subjects.

Scarcity of Places

The percentage of students progressing from the final grade of primary to the first grade of general secondary education is influenced greatly by the number of available secondary school places. Students completing primary school compete against each other for the relatively small number of places at the higher level. At one extreme, 80 percent of Ethiopian primary-school graduates transfer to secondary school while, at the other, as few as 4 percent of Rwandan students with the same attainment level do so. However, in the former case, it should be noted that the gross primary enrollment ratio is very low (38 percent). For eleven of the thirteen countries for which transfer data were available (Table 2.3), less than 50 percent of students advanced from the last grade of primary to the first grade of secondary school. In Uganda, for example, approximately one-third of the students completing the primary-leaving examination can expect to be accommodated at secondary level. In Kenya, of the 341,000 who sat for the primary-leaving examination (KCPE) in 1987, 51 percent were successful in obtaining places at the next level. In Malawi (examined in an earlier study), in 1986-87, the number of places in Form 1 of the secondary system only amounted to 7.6 percent of the total Grade 8 enrollment (Kellaghan and Greaney 1989). The bottleneck between primary and secondary school gives rise to great pressure on students to perform well on the primary school-leaving examination, that normally serves as the selection test for secondary school.

Repetition

Traditionally, grade repetition has been used as an indicator of educational inefficiency. High repetition rates, especially in educational systems that cannot accommodate all children of school-going age, represent a waste of scarce resources. While some repetition is to be expected for reasons such as illness or low achievement, the relatively high levels reported for the countries in this study (Table 2.4) is cause for concern. Repetition ranges from 2 percent of total enrollment in Zambia to 35 percent in Togo. On

Table 2.3
PERCENTAGES OF STUDENTS PROGRESSING FROM THE LAST GRADE OF PRIMARY TO FIRST GRADE OF SECONDARY SCHOOL, 1986

Countries/ linguistic status	Percentage
Anglophone	
Kenya	28*
Lesotho	26*
Mauritius	43
Swaziland	67
Ugand	NA
Zambia	23+
Francophone	
Chad	19
Guinea	27
Madagascar	28
Mauritania	29
Rwanda	12**
Togo	34
Other	
Cape Verde	45
Ethiopia	80

Source: World Bank (1990).

* 1970 .

+ Data for an adjacent year.

** 1989-90.

Table 2.4

REPEATERS AS A PERCENTAGE OF TOTAL ENROLLMENT, 1986

Countries/ linguistic status	Primary	Secondary
Anglophone		
Kenya	13	NA
Lesotho	23	NA
Mauritius	7	14
Swaziland	15	8
Uganda	14	NA
Zambia	2	2**
Francophone		
Chad	24	11*
Guinea	25	38
Madagascar	29*	20**
Mauritania (1987-88)	19+	First cycle 11+ Second cycle 16+
Rwanda (1987-88)	11+	6+
Togo	35	32
Other		
Cape Verde (1988)	27	15+
Ethiopia	10	11

* 1970.

** Adjacent year.

+ National Examinations Report.

the whole, repetition at secondary level, though still substantial, is lower than at primary level. Data for Sub-Saharan African countries in general show that the rate of repetition for Francophone countries is approximately four times that for Anglophone countries. Among the countries in our study, the highest repetition rates were recorded for four Francophone countries: Togo, Guinea, Chad, and Madagascar.

Dropout

Dropping out of school represents a waste of human and financial resources unless students acquire basic skills during their time at school. There is a considerable body of evidence to indicate that large percentages of students fail to reach the final grade of primary school in Africa. Some of this evidence has taken the form of reporting the proportion of a cohort that reaches the final grade.

Available data indicate that in almost half of the countries in our study, fewer than 50 percent of those entering primary school persist to the final grade of the primary school (Table 2.5). In Lesotho, it has been estimated that about one-quarter of those entering the lowest level complete primary school (Lesotho, Ministry of Education 1987, p. 13).

Recent Ethiopian data highlight the extent of early dropping out of school. In 1987, the enrollment figure in Grade 2 (N: 440,515) was less than half that in Grade 1 (N: 942,541). In Grade 3 (N: 350,197), there was a further drop of almost 100,000 pupils. While grade repetition would account for some of these differences, early dropout appears to be the main reason for the sharp decline in enrollment figures.

In Lesotho and Swaziland, the highest dropout rates at the primary level were recorded at the early and final grade levels.

Evidence from a number of countries suggests that the dropout rate is higher at the secondary than at the primary level. In Togo, for instance, in 1986, the dropout rate at primary level was 10.2 percent; it was almost twice as high (19.4 percent) over the first four-year period of secondary schooling.

Table 2.5

DROPOUT: PROPORTION OF COHORT (N: 1000) REACHING THE FINAL PRIMARY-SCHOOL GRADE, 1986

Countries/ linguistic status	Dropout Index
Anglophone	
Kenya	NA
Lesotho	517*
Mauritius	959*
Swaziland	615
Uganda	NA
Zambia	801*
Francophone	
Chad	172
Guinea	437*
Madagascar	NA
Mauritania	923*
Rwanda	486*
Togo	592*
Other	
Cape Verde	340*
Ethiopia	496*

Source: World Bank 1990.

* Data for adjacent year.

In a Swazi study of reasons for dropping out at the primary level, students who dropped out and their parents cited financial difficulty as the most important cause. Teachers, on the other hand, attributed dropout to poor school performance and lack of interest in studies, though they accepted that financial difficulty played a role. With one exception, similar reasons were advanced for dropout at the secondary level; the exception was the claim of dropouts that the main reason for not continuing in school was the non-availability of a higher grade in the area in that they lived (Swaziland, Ministry of Education 1986). We cannot, of course, assume that reasons for dropout would be the same in other countries.

Teacher Quality

Most of the educational systems in our study have large numbers of untrained teachers. For example, the majority of primary teachers in Cape Verde have no formal qualification. Frequently, those who fail to gain admission to teacher training on the basis of performance on a series of achievement tests are offered teaching positions in areas where there is a shortage. In Lesotho, 19 percent of primary and 16 percent of secondary teachers have no formal teaching qualification. In Ethiopia, approximately one in four primary and secondary teachers have had no professional training; in fact, a total of 11 percent had less than twelve years of formal school experience. At the secondary level, one in five 7th and 8th Grade teachers had a college qualification, while fewer than one in two of those teaching the final two years of secondary school had a university degree (ERGESE 1986). Madagascar authorities, faced with the difficulty of recruiting teachers for rural areas, have filled vacancies with men and women doing their national service. While the percentage of qualified teachers has improved dramatically in recent years in a number of countries (most notably Swaziland), the Kenya teaching force had a lower percentage of trained primary teachers in 1988 than in 1963. Like most other countries, Kenya has experienced a shortage of teachers of specialized subjects.

While entry qualifications to teacher-training colleges vary considerably, they generally tend to be low. Primary pre-service teachers in Mauritius embark on a two-year teacher-education program after passing the senior cycle examinations. In Mauritania, candidates for the one-year teacher-training program should have passed the *Baccalauréat*; those without this academic qualification may still opt for teacher training by undergoing a three-year course. In Madagascar, on the other hand, entrants to teacher training for primary school are required to have passed only the junior-cycle examination (CFEPCES) of the secondary school. They are then required to undergo a two-year training period and a further year of practical training.

Low salary levels are perceived to contribute to the low status of teachers though teachers' salaries in Africa are two to three times higher relative to income per capita than in Asia or Latin America (Mingat and Psacharopoulos 1985). The median salary around 1986 for teachers in countries in the study for that we had data was close to $1,400 for primary teachers and $2,200 for secondary teachers. But there were exceptions to this. In Madagascar, teacher salaries generally range from $45 to $63 per month. The value of this salary is brought into sharp focus when one considers that rice costs an average family about $28 per month, while rent for a simple apartment amounts to around $26 per month. It is evident that in this instance a teacher's salary cannot support a family. In Chad, unsalaried teaching assistants are often supported by the villages. In Uganda, the very low level of state salaries necessitates the raising of most of a teacher's income through direct parents' contributions and local fund-raising efforts.

It may be important to distinguish teacher quality from teaching quality. The findings of research relating to indices of teacher quality, such as teacher education and teacher experience, are not consistent. In some studies they have been found to be related to student achievement, in others not. In general, however, it seems that formal teacher education is less effective in Africa than in other developing-country regions. Further, the effects of teaching experience have generally been found to be less positive than the effects of formal teacher education. However, in analyses of IEA data collected in Swaziland, while teacher quality (education and experience) did not correlate with student achievement (when student background and school characteristics were controlled), the effects of teaching quality (expressed in terms of teaching process variables) were manifest (Lockheed and Komenan 1989).

4 Public Examinations

In this chapter, we provide a description of the examination systems of the fourteen countries included in our study, based on the reports prepared for the individual countries.

Tradition

Examination systems in African countries, not surprisingly, have been strongly influenced by traditions in the European countries that colonized them. Following traditions that are both British and French, examinations are formal, terminal, and subject-based. Countries in Francophone Africa use the French *Baccalauréat* system at the end of secondary school, while Anglophone countries have had close ties with British examining boards. In fact, the final school-leaving examination (GCE) in two of these countries continues to be set and marked in Britain. Anglophone countries have also tended to use features of British examinations such as moderators. In recent years, national examination systems have become more independent and have tended to develop their own examinations. The problem of processing very substantial numbers of examinations has led to an increasing reliance on multiple-choice tests, favored by educational systems in the United States.

Titles and Descriptions of Examinations

A total of fifty-two public examinations offered at primary and secondary (general) levels of education was identified. In addition to these, many examination bodies offered a range of other public examinations in the areas of vocational education and teacher training. The numbers of candidates taking these examinations are small compared to the numbers taking public examinations at the primary and secondary levels. Vocational and teacher-training examinations were considered to be beyond the scope of the present study. In general, public examinations are offered at the end of primary schooling, midway through the secondary school, and at the end of secondary schooling. Students in Francophone countries tend to be subjected to more examinations than those in Anglophone countries. In particular, additional examinations are administered during the primary school years in Francophone countries. In a number of Francophone countries, also, a competitive examination, termed the *concours,* is used to select pupils for the next highest educational level.

Written essay examinations are offered in most countries. In two countries, however (Ethiopia and Zambia), the multiple-choice format predominates. The broad array of examination formats offered also includes practicals, orals, and aurals. Anglophone countries in general tend to use a variety of examination types. In each of these countries practical tests are used in public examinations. Virtually all use essay and multiple-choice items in at least one public examination. Four Anglophone countries include aural components in their public examinations. Other formats (oral, projects, short-answer) are used less frequently. Francophone countries tend to opt for the written and oral formats.

For each of the fourteen countries in our study, details of examination titles, types, functions, and the stage of education at which they are administered are given in Appendix 2. The name of the agency that has responsibility for each public examination is also given.

Size of Examination Enterprise

The primary school-leaving certificate examination is clearly the most significant in numerical terms (Table 3.1). Kenya (N:354,802), Ethiopia (N:281,734), Zambia (N:197,000), and Madagascar (N:192,405) have the largest numbers of candidates for this examination. In all but two (Ethiopia and Swaziland) of the fourteen countries the number of secondary junior-cycle candidates in the system is less than half the number of primary candidates. Over 100,000 take the secondary school-leaving examination in Ethiopia (N:175,277) and Kenya (N:131,000). In the case of all but these two countries, the senior-cycle school-leaving certificate candidates total fewer than one-quarter of the number of primary candidates. In approximately half of the countries for which data were available, fewer than 5,000 candidates took the senior-cycle terminal examination.

Setting of Examinations

Three distinctively different approaches are used for writing items and setting examination questions in the countries reviewed.

First, in a number of countries with developed national examination centres, such as Kenya, Swaziland and Mauritius, much of the work is conducted by staff members working closely with others, usually teachers. In these countries, multiple-choice is the preferred examination format.

Second, in Francophone countries, in general, a less formal approach is used that allows for much more direct input from teachers. In Guinea, for instance, secondary-school teachers are asked to submit topics for examination. A commission adds its own topics from a data bank. The Minister then makes the final choice of questions. Teachers who set the examinations may have unrealistic goals and expectations. In Rwanda and Mauritania, the Minister is closely involved in the examination-setting process; concern over test security is the primary reason for the adoption of this procedure. The ability of teachers to judge the appropriateness of items or to estimate the time required to answer individual papers has attracted critical comment. In Rwanda, for example, an examination for which a three-hour time period was set aside was completed in a half-hour by the candidates.

Third, in some countries (Lesotho and Zambia) formal courses for examiners are organized by examination councils. In 1987, in Lesotho, Primary Certificate multiple-choice items were written by teachers and subject specialists in specially organized workshops. Final examination items were selected on the basis of their degree of discrimination and difficulty, and on the judgment of subject specialists.

In a small number of countries, the writing of items for the terminal secondary-school examination is entrusted to university personnel. In Chad and Ethiopia, items are written by staff members from the University of Chad and the University of Addis Ababa respectively.

Use of Aptitude Tests

Scholastic aptitude tests have not proved popular in the context of public examinations in Africa. This is perhaps because they have not been very popular in Europe either, as compared, for example, with the United States. There are a number of other

Table 3.1
SIZE OF EXAMINATION ENTERPRISE

Countries/ linguistic status	Primary		Secondary	
Anglophone				
Kenya (1988)	KCPE 354,802		KCE (Discontinued, 1987)	KSE 131,000,
Lesotho (1987)	PSLCE 23,998		JCE 6,642	COSC 2,790
Mauritius (1989)	CPE 33,083		SC 11,141	HSC 3,977
Swaziland (1987)	PC 13,943		JCE 7,500 (1988)	COSC 2,561
Uganda (1989)	PLE 134,669		UCE 42,507	UACE 13,248
Zambia (1987)	G7 197,000		G9 59,933	SC 15,343
Francophone				
Chad (1988)	*CEPE/CEPEA* 17,840	*Concours* 20,550	*BEPC* 7,985	*Bac* NA
Guinea (1988)	7th year Entrance 24,668		*BEPC* 12,148 (ii) 4209	*Bac* (i) 9290
Madagascar (1988)	*CEPE* 192,405		*CFEPCES* 84,635	*Bac* 47,624
Mauritania (1988)	*CEE* 23,680	1st year Secondary 23,680	*BEPC* 3,463	*Bac* 7,361
Rwanda	*CEP*	*Concours* 57,089	*Examens de reclassement* 2-2,500	
	NA		End of 3rd year 3,500	NA
Togo (1987)	*CEPD* 46,364		*BEPC* 18,190 (ii) 5610	*Bac* (i) 5163
Other				
	End of Elementary	Basic Complementary	First Cycle General	Second Cycle Complementary
Cape Verde	NA	NA	NA	NA
Ethiopia (1988)	G6 281,734		G8 237,011	ESLCE 175,277

possible reasons for their lack of popularity. First, curricula in schools are more closely prescribed in Africa (as they are in Europe) than in the United States. Second, in a number of studies, scores on scholastic aptitude tests have been found to predict performance in third-level institutions less well than subject-based examinations (see O'Rourke, Martin, and Hurley 1989). Third, the use of an aptitude test might lead schools to emphasize preparation for this kind of test at the expense of covering material designed to achieve curricular objectives.

It can be argued that a scholastic aptitude test may still have certain advantages in certain situations. First, being neither criterion-referenced nor based on a single concept of subject excellence, it could allow local school authorities to experiment with curriculum. Second, it might have a particular value in countries in which school inputs and facilities vary widely, insofar as it is less sensitive than achievement tests to the differential opportunities of students to learn (Heyneman 1987).

In Africa, two countries used aptitude tests for a number of years but discontinued the practice. An aptitude test was administered as part of the Ethiopian School-Leaving Certificate Examination between 1967 and 1974. In Lesotho, verbal reasoning and numerical ability tests were introduced in the 1970s to be used in conjunction with the achievement tests of the primary-school certificate examination to select students for secondary school. Sebatane (1985) reports that the "predictive validity" of the tests was "professionally established" but does not report any details. The results of the ability and achievement tests were combined, a practice described by Sebatane as "untenable." The practice of administering the ability tests has been discontinued.

The most consistent use of aptitude tests has been in Zambia. Verbal and nonverbal reasoning tests are administered in conjunction with four subject achievement tests in the primary school-certificate examination. In a small-scale study in the 1960s, it was found that ability tests (measuring verbal reasoning, nonverbal reasoning, and numerical skills), that were administered in addition to, but not as part of, the secondary-school selection examination of achievement, were better predictors than the selection examination of performance on the Junior Certificate national examination taken two years later (Irvine 1968). In further studies of the predictive validity of the examinations, reported in a note prepared by the Psychological Service of the Ministry of Education, performance on the verbal-reasoning test was the best predictor of success at secondary school. Performances in the English certification examination and on the nonverbal reasoning test were the next best predictors. In particular, and not unexpectedly, the spatial component of the nonverbal test was found to have "a very high correlation" with performance in mathematics and physical sciences. Furthermore, performance on the nonverbal reasoning test was found to correlate "very well with success at technical courses at tertiary level." Unfortunately, we do not have more details of these studies—for example, the magnitude of the correlations between performance on the aptitude tests and later school performance—but further information about this research would obviously be of considerable interest in the context of the selective functions of public examinations.

School-based Components of Examinations

A few systems currently include assessments conducted by students' teachers as part of the final examination grade. The junior-secondary cycle examination in Lesotho has elements of school-based assessment, while in Ethiopia, a total of 30 percent of the total marks for the primary school-leaving examination (G6) is awarded for school-based assessments.

Despite the potential advantages of this form of assessment, especially from the validity perspective, a number of problems have been observed in its use. A lack of variance in school-based marks has been noted; marks tend to be inflated. Some schools fail to submit students' school-based assessment marks in time. In such instances, candidates in Ethiopia are awarded the same percentage marks for school-based work as they achieved in the public examination. Since school-based marks are usually higher than examination marks, these candidates tend to be penalized due to the failure to return school-based marks.

Marks derived from school-based assessments, at one time used to contribute to the total marks for the *Baccalauréat* in Guinea, are no longer used because serious discrepancies were found between the school-based and non-school-based elements of the examination. Discontinuation of the practice in Guinea has contributed to an observed increase in discipline problems, less regular attendance, and a nonchalant attitude towards school examinations.

Scoring

In most systems, scoring or marking of state examinations is carried out by practicing teachers. In fact, this exercise is considered a most useful form of in-service teacher education for its participants since it highlights the essential elements of the curriculum, standards expected, and marking procedures. In Cape Verde, scoring is entrusted to the candidates' teachers. Responsibility for scoring some public examinations is assigned to regional or local committees of teachers in Togo and Madagascar. In Swaziland, moderators are used to scrutinize a sample (10 percent) of scripts marked by teachers and to recommend, if necessary, changes in the scoring.

In other countries, notably Kenya, Lesotho, Mauritius, and Zambia, multiple-choice tests are machine-scored. Ethiopia's ESLCE has been machine-scored by the University of Addis Ababa since 1977. Ethiopia's other national examinations are scored by large groups of university students or members of youth organizations.

Systems that require students to complete projects and/or administer practical examinations tend to have assessments conducted by outside teachers. In this case, and also where practicals are conducted by the students' own teachers, the process is often monitored by the school inspectorate. A number of examination systems (Lesotho, Mauritius, Swaziland) have their senior-cycle secondary school-leaving examinations set and scored by an agency outside the country (the University of Cambridge Local Examination Syndicate and London University Schools' Examination Council).

No formal reliability studies of public examinations appear to have been conducted. To ensure the reliability of the scoring procedure of essay-type examinations, several different procedures have been used. In Togo, papers are corrected once except in "cases where the score distribution shows a large deviation from the norm already known by the committee." (Unfortunately the country report does not indicate the source of this norm or elaborate on the term "score distribution"). In such instances, papers are recorrected. In Mauritania and Madagascar, each paper is corrected twice; in Madagascar, the average mark is assigned except where the difference is "very large," in which case the paper is scored a third time. The scoring process adopted in Guinea clearly indicates that factors other than level of performance on the set questions in the examination affects a candidate's final mark. Scorers are made aware of candidates' school grades prior to correction. According to the national report "these records allow the jury to more fairly mark those pupils who have not received a complete education covering all of the questions posed at the examinations." It seems reasonable to assume also that a student who performed well on the examination could have his or her mark reduced in line with expectations derived from school grades.

Technology

The use of computers and optical-scanning machines allows for the processing of large amounts of examination data in a short period. Furthermore, if multiple-choice items are used, computerized item analysis facilitates the provision of feedback information to schools.

To date, the use of computers and optical scanning devices appears to have been confined in the main to Ethiopia, Kenya, Lesotho, Swaziland, and Zambia. Dependence on modern technology is most pronounced in Kenya. Over 360,000 primary-school leaving-certificate examinations are scanned and analyzed in a year. Each year, through its *KCPE Newsletter*, schools are informed of the percentage of candidates in the country who answer each item correctly and in many instances the percentage opting for each distractor. Computers are also used to calculate national order of merit lists.

Some examination systems rely on outside agencies for computer services. Processing of the Ethiopian ESLCE is done by the University of Addis Ababa; in Zambia, machine-scoring of multiple-choice tests is undertaken by the Department of Finance, while other processing, including the production of certificates, is done at the University of Zambia.

Swaziland and Ethiopia have encountered serious problems that have thwarted their efforts to use modern equipment to score large numbers of examinations efficiently. In the former, machine-scoring had to be discontinued as the process produced too many errors. In Ethiopia, the inability to obtain appropriate scanner parts due to a lack of appropriate arrangements for securing foreign currency resulted in a return to hand scoring of the Grade 6 and Grade 8 national examinations.

Functions of Examinations

In theory, public examinations are expected to serve a number of different functions. For teachers and pupils, they can act as an incentive for greater effort. They are regarded as a fair means of distributing scarce educational benefits. They can provide feedback to teachers and students on their strengths and weaknesses. Public examinations can help unify the teaching effort throughout an entire country around common goals and themes. For students, they provide formal evidence of educational achievement (certification). Public examinations may also serve an accountability role by offering evidence of standards attained by individual teachers and schools. Lastly, and most important in the present context, educational systems, governments, and other employers use examination results for selecting appropriate candidates for the next level of schooling or for employment.

Selection

In practice since educational opportunities form a pyramid with fewer places available at each successive level, the primary function of almost all public examinations reviewed in the fourteen countries in our study is selection. While most of the examinations also serve a certification function, some, most notably the *concours* in Francophone countries, are designed solely to select students for the next highest level of the educational system. The highly competitive *concours* is used, for instance, in Togo at the end of the secondary junior-cycle to select students for the three-year senior-cycle program and again at the end of this cycle to select candidates for colleges and universities and for foreign study.

The capacity of educational systems rather than the academic achievement of students plays the crucial role in determining the percentage of pupils who advance to the next highest level. Lack of schools, especially secondary schools, inevitably results in a severe bottleneck at the end of primary school. The number of selected or promoted students depends ultimately on the number of available places. Pressure for a place in a secondary school is most pronounced in Rwanda, Uganda, Chad, and Zambia. In Ethiopia, on the other hand, little selection pressure at the end of primary school is due to the ready availability of places; the vast majority of students can transfer to secondary school. Here, as in the other countries, however, the selection factor is emphasized at the end of senior cycle. Evidence for this claim is provided by the large number who repeat the ESLCE in the hope of improving their grade-point average to qualify for one of the relatively few available places in third-level educational institutions.

In a number of Francophone countries, rigid marking systems are employed at end-of-year grade examinations, administered to select or to promote students to the next highest grade. Among the most severe is that employed in Chad secondary schools in which a mean mark of ten or more is required for promotion, greater than seven and less than ten for repetition, while a mark of seven or less results in expulsion. Given what is known about the extent of marker unreliability in examinations, this procedure obviously presents problems. If, for example, a student obtained a score of 8.5 on a test with a standard error of measurement of 0.8 we could say that the individual's "true" score lies between 10.1 and 6.9 with a 95 percent level of confidence. This range encompasses each of the critical promotion, retention, and expulsion cut-off points. Thus, it is reasonable to assert that a student who was expelled from school on the basis of examination performance could have merited either retention or promotion had an accurate measure of student achievement been available.

Since the selection function of examinations relates to the identification of students who are most likely to succeed at the next highest level, the lack of studies of the predictive validity of examinations is surprising. Clearly it would be possible to increase the efficiency of the selection process by using shorter tests. Such tests would require less supervision and less time in marking and in analysis and so could result in substantial financial savings. Overemphasis on increasing the efficiency of the selection function, however, would inevitably run the risk of reducing the content coverage of the examinations (see Chapter 5). As a consequence, we would expect that over time sections of the curriculum not being examined would be neglected in schools. The combination of selection efficiency and curricular validity in examinations involves a delicate balance.

Certification

The emphasis on the selection function of examinations is so pervasive that there is a danger of losing sight of their certification function. With the exception of the *concours* and those taken in some countries prior to the primary school-leaving examinations, virtually all of the examinations have a certification function. Formal certificates that indicate candidates' academic achievements may be important credentials for gaining employment or for qualifying for further training. In Ethiopia, for example, possession of the Grade 6 and Grade 8 certificates may be required as a minimum qualification for a range of occupations, for example drivers and filing clerks. Lower level certificates, however, as the numbers possessing them increase, are losing their currency in the labor market.

There has been a growing tendency in recent years to use the same test to meet selection and certification requirements. In Mauritius, for instance, prior to the introduction of the present Certificate of Primary Education (CPE), a primary school-leaving certificate served certification requirements while a different examination (Junior Scholarship) administered around the same time satisfied the selection requirement. A realization that the two formal examinations contributed to excessive pressure on ten- and eleven-year olds led to the dropping of both examinations in favor of one (CPE) that now serves both functions.

An examination may be an efficient selection device but may fail to serve the important certification function. Certification, which is recognized as a function of examinations in all countries, is primarily concerned with providing a measure of curriculum coverage. Adequate curriculum coverage is more likely to be provided in broad-based examinations that extensively sample the prescribed syllabus than in examinations that are confined to narrow content domains, which cover material that is normally not directly prescribed in school curricula, such as nonverbal reasoning ability, or that are confined to one or two assessment procedures.

Accountability

Public-examination results are frequently perceived as providing evidence of school effectiveness. In a number of countries, schools and teachers may be held accountable for their students' achievements as reflected in performance on public examinations. The use of examination results to hold teachers or schools accountable is magnified when results are published. Even when results are not formally published, education officials may congratulate officials of schools in which students have performed well or require less successful schools to explain poor examination performance.

Performance

Attempting to summarize and provide figures comparable across countries for examination performance (such as are presented in Table 3.2) is problematic. Such a summary fails to take into account differences in criteria for awarding grades or in the structure of performance (that may involve compensation across subjects or reaching a particular level in specific subjects) that can merit a pass or a particular grade. Even within the same examination, different criteria can be used to indicate that a student has "passed." For example, in the school-leaving certificate examinations of a number of countries, such as Kenya and Lesotho, to obtain a school certificate, a candidate must have passed in a specified number of subjects. However, candidates who do not obtain the specified number of passes may obtain a certificate in the subjects which they did pass. In our table, we provide figures for the students who pass the total certificate examination and, when available, figures for candidates who failed to get a general certificate but passed some subjects in the examination. Thus, problems in comparability can arise from the fact that what is meant by a pass can vary from examination to examination, not only between but also within countries. Further, in a number of countries (Kenya, Zambia), a distinction is not made between pass and fail on the primary school-leaving examination.

To complicate matters, success or failure in the eyes of students, parents, and teachers may not be determined so much by examination-performance level as by whether or not a student qualifies for a place at the next highest level of the educational system. A mark of 80 percent on a primary school-leaving examination may gain admission in

Table 3.2
PUBLIC-EXAMINATIONS PASS RATES

Country / linguistic status	Primary		Secondary	
Anglophone				
Kenya (1987)	KCPE Not applicable		KCE 78.0%	KACE 56.3%
Lesotho (1987)	PSLCE 91.0%		CE 65.1-68.8% (1980-87)	COSC 19.4%-31.7% (1980-87) 62.2%-74.7% (GCE)
Mauritius	CPE 58.4%		SC 58.1%	HSC 52.6%
Swaziland (1988)	PC 79.6%		JC 67.3%	COSC 54.0%
Uganda (1987)	PLE 82.2% (1989)		UCE 80.1%	UACE 66.4%
Zambia (1983)	G7 Not applicable		G9 35.8%	SC 63.6% + 32.4 (GCE)
Francophone				
Chad (1988)	*CEPE/CEPEA* 56.8%	*Concours* 35.3%	*BEPC* 49.8%	*Bac* 12.9% (1987)
Guinea (1988)	7th year Entrance 56.6%		*BEPC* 48.8%	*Bac* (i) 21.0% (ii) 30.6%
Madagascar (1988)	*CEPE* 49.0% (1987)		*CFEPCES* 26.7%	*Bac* (i) 20.1% (ii) 18.2%
Mauritania (1988)	*CEE* 22.0%	1st year Sec. 29.2%	*BEPC* 37.6%	*Bac* 25.6%
Rwanda (1988)	*CEP* NA	*Concours* for Sec. 7-9%	NA NA	93.2% (Public) 70.0% (Private)
Togo	*CEPD* NA		*BEPC* NA	*Bac* NA
Other				
	End of Elementary	Basic Complementary	First Cycle General	Second Cycle Complementary
Cape Verde (1987)	67.3%	56.9%	NA	NA
Ethiopia (1987)	G6 82.5%		G8 68.3%	ESLCE 97.7% (Amhric) 51.9% (Math)

one country but may be insufficient to do so in another where there is a severe shortage of secondary-school places.

Most systems tend to use some form of preset achievement standard to award marks. While the percentage of students getting various grades under this approach varies relatively little from year to year, notable variation does occur. In 1986 in Guinea, for example, 27.4 percent of candidates passed the Grade 7 entrance examination. Two years later, this figure had more than doubled to 56.6 percent.

A number of systems transform examination marks into normalized scores, for example Ethiopia and Lesotho. Marks are transformed into standard scores so that individual students' reported scores reflect their performance relative to the performance of other students. Such an approach can tell us little about what a pass means in terms of a student's level of performance or knowledge. The standardization of scores ensures that, irrespective of level of achievement, percentages passing, failing, or gaining distinctions are predetermined. Undue reliance on normalized scores can lead to the adoption of grading practices that bear little resemblance to educational realities (Sebatane 1985). For example, an independent study of the secondary school-leaving examination in Ethiopia reported that the cut-off raw score that distinguished between pass and failure on three of the 1986 subjects, English, history, and chemistry, approximated the number of items that could be attributed to guessing the answer to each item (Cambridge Educational Consultants 1988).

The summary data in Table 3.2 reveal that large numbers of candidates were unsuccessful in public examinations. In a number of countries, fewer than one in four passed the primary school-leaving examination. High failure rates (60 percent +) were also recorded on the junior and senior-cycle certificate examinations. In almost all countries, pass rates were highest on the primary school-leaving examination and lowest on the secondary senior-cycle examination. In general, the secondary-school pass rates seem to have been slightly lower in Francophone than in Anglophone countries.

Within individual countries, substantial variation in performance rates has been recorded between different regions. For example, the pass rate on the primary school-leaving examination (CEPE) in Madagascar was approximately 60 percent for candidates living in cities and as low as 20 percent for rural candidates.

Repeat students tend to lower the mean pass rates. In 1988, repeat students represented 59.4 percent of all candidates in Ethiopia for the ESLCE secondary leaving examination. Their mean score (which was considerably below a D grade) placed them lower than other candidate categories. On the 1983 Zambian Junior Secondary-School Certificate Examination, the success rate of internal candidates (52.5 percent) was more than six times that of external candidates (8.4 percent).

Examination Repetition

Policies regarding examination repetition vary. Students who fail public examinations in Ethiopia may repeat the year in school provided there is sufficient accommodation; otherwise they must study outside of the public-school system. Madagascar permits multiple repeats on its primary-leaving examination. On the other hand, Guinea and Mauritius limit the number of repeats while Zambia and Lesotho require the public-school candidates to pass some public examinations on the first attempt. Both these countries, together with Kenya, Cape Verde, and Mauritius accept repeat private candidates.

Governance and Administration

Public examinations are organized and administered either by the Ministry of Education (or special sections within the Ministry) or by an independent body established specifically for this purpose. In general, in Francophone countries, responsibility is vested in the Ministry, while in a number of Anglophone countries, it is vested in an independent examination board or council. In a relatively small number of countries, such as Ethiopia and Togo, the Ministry has responsibility for primary and junior-cycle secondary examinations, but the senior-cycle school-leaving examination (or part of it in the case of Togo) is administered by university authorities. Appendix 2 identifies the agency or body that has been given responsibility for individual public examinations or shares responsibility with external examination organizations, for example the University of Cambridge Local Examination Syndicate.

Examination systems in Kenya, Lesotho, Swaziland, Mauritius, Zambia, and Uganda are run by independent boards. Membership of these boards tends to be drawn from a broad educational constituency. Ministries of Education are represented by one or more members. The membership of the Uganda National Examinations Board, for example, includes four ex officio members: the Vice-Chancellor of the University, the Chief Education Officer, the Chief Inspector of Schools, the Director of the National Curriculum Development Centre; seven elected members from professional bodies; and thirteen ministerial appointees (mostly principals of different types of schools and colleges).

In general, examination sections within education ministries and examination boards publish syllabi and regulations for their examinations, appoint appropriate personnel (markers, invigilators, etc.), and issue certificates.

There is a trend in Anglophone countries, though not in Francophone ones, towards the devolution of responsibility for the administration of examinations to an authority other than the Ministry of Education. However, even in countries in which an examinations authority has responsibility for examinations (for example, Ethiopia, Lesotho and Zambia), the authority still maintains close links with the Ministry and may be dependent on other bodies for a variety of services, such as marking of tests and computer facilities.

Localization of Examinations

A trend in countries in which students take foreign examinations as part of their normal schooling is to localize all examinations, that is, to have examinations controlled within the country. There are only three countries (Lesotho, Mauritius, and Swaziland) in which the leaving-certificate examination at the end of secondary schooling is designed and marked abroad (in Britain), and steps are being taken to change that situation. Localization frees foreign currency for other activities, though whether the money will be made available for improving the resources available for examinations is another matter. It also, however, raises questions about the maintenance of standards and the acceptability of a country's educational qualifications in other countries. The localization of examinations, particularly at the end of secondary school, has been viewed with apprehension in some countries in case standards should fall as a consequence. Governments, examination bodies, and the general public are very keen to see that this does not happen and that their school qualifications will have currency not only nationally but internationally. To achieve this, it will be necessary for governments to invest more in evaluation and research activities relating to examinations.

Funding

Information from a limited number of countries that have made appropriate data available suggests that levels of state funding of public examinations vary considerably. At one extreme, Madagascar devotes 10 percent of its total educational budget to public examinations. Chad and Rwanda, on the other hand, spend less than 0.5 percent on this exercise. Size of government expenditure on public examinations expressed in monetary terms or as a percentage of current government expenditure on education may represent only part of the total examination expenditure. Where Ministries of Education meet all examination costs as they arise, many, if not all of the costs, are absorbed into the general operating budget of the Ministry.

The difficulty of estimating or conducting a comparative analysis of examination costs is compounded by the fact that the number of cost-incurring items differs among countries. In Cape Verde, for example, teachers who construct examination papers or who supervise at examination sessions are not paid. Furthermore, at the basic elementary level, markers are paid only for correcting external candidates' scripts. At the secondary level, markers are paid by the schools.

In at least five of the countries reviewed (Kenya, Lesotho, Mauritius, Swaziland, and Zambia), public-examination bodies allocate considerable portions of their budgets to the purchase of foreign currencies. For security reasons, Kenya devotes roughly 15 percent of its total budget to external printing of its primary and secondary examinations. In Zambia, approximately 8,000 students take the GCE O-level examination each year, at a cost of $782,500 to the Examinations Council. Since the amount that the Council is permitted to charge candidates is not nearly sufficient to meet the GCE costs, it must subsidize the fee paid by each student. The country's deteriorating financial position and the difficulty of raising foreign currency place the continued operation of the examination in jeopardy. Figures from Mauritius for 1986-87 indicate that foreign examination syndicates acquired $1.16 million for fees for secondary-level examinations; Cambridge University Local Examination Syndicate received $970,000 of this total. Other countries that pay substantial amounts of foreign currency, mainly for senior-cycle leaving-certificate examinations, are Lesotho and Swaziland.

While the inevitable increase in candidate numbers will increase the cost of funding public examinations, economies of scale should lessen unit costs. In Kenya and countries dependent on externally produced and corrected examinations, local printing, examination production, and correction could reduce costs.

Some examination authorities raise funds through their publishing activities, notably by publishing copies of previously administered public-examination papers.

Fees

In general, fees for end of primary-school examinations are either not charged or are kept to a low level (see Table 3.3). This can be attributed to government policies of encouraging pupils to persist in school up to the end of the first or compulsory cycle. Senior-cycle secondary-school examinations are generally much more expensive for students than those offered at the end of junior cycle. Candidates for examinations offered by overseas examination boards or syndicates are required to pay high fees. The fee for the senior-cycle terminal examination in Lesotho ($124.19) represents considerably more than the mean monthly income per capita in the country.

Fees do not cover costs. In Kenya, for example, although the National Examina-

Table 3.3

CANDIDATE FEES FOR PUBLIC EXAMINATIONS

Countries/ linguistic status	Scale
Anglophone	
Kenya	KCPE - $3.54; KCSE $42.49 (minimum)
Lesotho	PSLCE - $1.86; JCE - c. $32.09; Senior Cert/COSC - c. $124.19
Mauritius	CPE - none; Second level examinations - $67.00 average
Swaziland	PC - $1.25 per subject; JCE - Reg. fee - $3.33 + $2.92 per subject; COSC - Registration fee - $13.13 + $11.46 per subject
Uganda	PLE - $1.71; UCE - $13.14 (8 subjects); UACE - $13.43 (3 principal, 1 subsidiary subject)
Zambia	None - G7 and G9 (except external); SC - $12.87 (8 subjects)
Francophone	
Chad	No fee
Guinea	No fee
Madagascar	*CFEPCES* - $0.19; *Bac.*- $1.58
Mauritania	NA
Rwanda	None apart from *Examen de reclassement* and*Le Jury Central* - $12.53
Togo	*CEPD* - $0.36; *BEPC* - $1.80; *Bac.*1 - $7.30; *Bac2* - $12.90
Other	
Cape Verde	Basic elementary - none; Basic complementary - $2.20; General secondary - $10.20; Complementary Secondary - $2.00 per subject
Ethiopia	Grade 6 - none; Grade 8 - none; ESLCE - Gov. schools free; Others: Registration fee - $2.50 + $2.00 per paper

tions Council effects considerable efficiencies through computer-scoring its primary leaving examination, its income from fees for the examination represents less than 50 percent of the total cost. In Uganda, the ratios of unit costs to unit fee for the three major public examinations are 1.34:1 for the PCE, 1.42:1 for the UCE, and 1.44:1 for the UACE.

Security

A marked feature of public examinations in Africa is the pronounced emphasis on security. The security dimension is emphasized throughout all stages of the examination process: setting questions, printing, proofing, packaging, distribution, supervision, and correction. The security emphasis simply reflects the importance of examination success in the lives of students and their families. Success offers some hope of securing valued scarce employment or of advancing to the next highest educational level. Failure, on the other hand, can lead to a relatively frugal existence or at best a lost year devoted to preparing for the same examination.

Commentators have noted "the ease with which malpractices can occur" (Kelly 1986, p. 552). In Togo and Madagascar, concern has been expressed that security is not well maintained. In Zambia in 1980, it was reported that candidates in three regions received help from invigilators during the GCE. Copying has been a problem in Ethiopia. Collusion between candidates and supervisors, though rare, has been reported in Swaziland. Premature opening of envelopes containing examination papers has been noted in Rwanda. In Uganda, types of examination irregularities reported include leakage, impersonation, external assistance, smuggling, copying, collusion, and substitution (Ongom 1990).

In general, however, examination authorities are confident their security precautions are effective. Machine scoring appears to contribute to test security because it reduces the personnel requirement for scoring. Concern has been expressed, however, that due to the development of sophisticated devices, the security of machine-scored data is by no means guaranteed. In Ethiopia, the typing of Grade 6 and Grade 8 examinations is entrusted to one typist. In many countries, people entering and leaving centres in which examination papers are printed are searched. Supervisors in Zambia must take an oath of secrecy. Similarly, employees of the Kenyan National Examination Council sign documents binding them to the terms of the Official Secrets Act. Papers for examinations in Kenya are printed in the United Kingdom due to the absence of secure local printing facilities. Elsewhere, papers are printed in secure premises, often as near as practical to the date of the examination to avoid unnecessary storage problems or security breaches. Distribution of papers is undertaken under secure conditions.

Some systems use identification numbers to ensure that markers do not have access to candidates' names. In the case of oral examinations, care is taken to ensure that candidates do not hear the questions beforehand or come in contact with others who have heard the questions. When there is evidence of misconduct at an examination centre in Uganda, the entire examination may be cancelled. In Kenya, serious malpractice in relation to the conduct of an examination can lead to a lengthy prison term.

Feedback

Public examinations can be used to provide feedback to teachers, curriculum bodies, and educational policymakers. Several of the countries in our review provide some kind of mechanism to make information on examinations available to interested parties.

Past examination papers are important sources of information in some countries and considerable use is made of them in schools. Such papers, however, are not available everywhere, such as in Lesotho. The widespread involvement of teachers from various parts of the country in item-writing, for example in Lesotho, has also been an important source of information to schools about the skills and knowledge tested in examinations.

Comparisons among Schools/Districts

Another source of feedback provided by examination authorities is the publication of the examination results of students on a school-by-school or district-by-district basis (Ethiopia, Kenya, Rwanda, and Swaziland).

Analysis of Results

Some examination systems have devoted resources to providing detailed analyses of students' performance on public examinations. For example, in Lesotho, the test items for the primary-school mathematics examination, together with performance item statistics for the population of examination candidates, was sent to all schools. Item-analysis information has also been prepared in Ethiopia, but the information was given only to Ministry of Education or Examination Board personnel. Countries in which item-analysis data have been used for post-examination reports are Kenya, Mauritius, and Swaziland. Chief Examiners may also provide descriptive reports on the overall performance of students on individual examinations and even on individual examination questions. In some countries, such as Zambia, every school receives a copy of the Chief Examiner's Report.

Information about examination performance can be helpful in identifying aspects of the curriculum that appear to have been poorly taught or ignored by teachers. We might expect the information to contribute to improvement in the construction of examinations and in future examination performance.

The *KCPE Newsletter* published by the Kenyan National Examinations Council is an example of a systematic approach towards informing teachers about how students have performed on examinations. The newsletter, which is circulated to all schools, contains item-analysis data for each examination paper. It also includes suggestions as to why students may have selected particular incorrect options. Examples of poor, average, and good answers to selected questions are presented and teaching implications are described. Teachers make frequent use of the information provided in the Newsletter in their classes. For example, they analyze with their students the characteristics of "good" and "poor" essays presented in the newsletter.

Timeliness

Prompt release of examination results is necessary to allow for appropriate planning by schools and individuals. Results returned after the commencement of the new school year represent an inefficiency, as they clearly delay the assignment of pupils to appropriate classes. The lag between the time the examination is given and the formal publication of results depends on the efficiency of collection procedures and the size of the examination enterprise.

Even within countries, the timeliness of feedback varies from one examination to the next. Evidence from Chad suggests that the results of the CEPE and the *Baccalauréat* are available as soon as one week after the examination while Grade 6 *concours* results may take up to three months to be published.

A disadvantage associated with the Kenya *KCPE Newsletter* is that it does not appear until the final term of the year following the examination, thereby lessening the potential value of its feedback for teachers. Since, however, curriculum content tends to remain constant over the years, the overall utility of the newsletter is probably not seriously diminished.

Challenges to Examination Results

A number of examination bodies permit appeal of examination results. In both Lesotho and Swaziland, appeals are allowed, on payment of a fee, for a period of six weeks following the publication of the primary and junior-cycle results. In Lesotho, if the appeal is successful, the candidate is refunded half the fee. Ethiopian authorities discourage appeals, claiming that the process is both expensive and time-consuming, but the Board does recheck results. Appeals in Zambia must be submitted through the principal teacher; recheck fees are not charged. Similarly, in Swaziland, requests for rechecking the results of the Cambridge Overseas School Certificate Examination must be made through the principal. In this instance, the examination authorities do little to encourage candidates to seek a recheck. It is stressed in an explanatory note that reports will be limited to one subject per school on any one occasion of the examination and to the work of not more than six candidates in that subject. The service is not made available to private school candidates.

Outside-School Tuition

As happens elsewhere throughout the world, students in examination classes frequently seek additional academic help outside of school or in tuition offered in schools outside of regular school hours. The emphasis on private tuition is particularly pronounced in Mauritius. One study reported that 73 percent of Standard 6 pupils in the primary school-leaving examination class took private tuition. As many as 11 percent of Standard 1 pupils also took private tuition. Tuition frequently was provided in groups of twenty-five or more. Approximately 60 percent of secondary-school students also enrolled in tuition groups (Joywathsing and others 1988).

5 Issues in Examination and Assessment

In this chapter, we consider trends that appear in the examination systems of at least some of the countries included in this study and outline issues to which education authorities might direct their attention when considering possible areas for reform in assessment and examination procedures.

In considering these issues, sight should not be lost of the fact that considerable differences exist between the examination systems of the fourteen countries described in this report. In highlighting issues, one can easily give the impression that contextual factors that operate in the individual countries are less important than they actually are (see Little 1990). Of obvious importance are differences in the educational systems of the countries. For example, there are differences in the numbers of students who are retained at varying levels and differences in the use of a vernacular language for instruction. Both have implications for the assessment of learning. Among the differences in examination systems are differences in traditions, not only in the colonial period but also in the post-independence period, which reflect considerable diversity in the way in which national systems of examinations have developed (Eisemon 1990). Examination systems also differ greatly in the use of technology , for example, in the use of computers and optical-mark readers. Such differences have implications that go beyond the technology. For example, they affect the types of items used in examinations, methods of marking, costs, and the ease with which information on examination performance can be provided to a variety of publics.

Expanding Enrollments

Perhaps the most obvious trend in the development of examinations in recent years in many of the countries studied for this report, has been the enormous increase in the numbers of students sitting for examinations. For example, between 1968 and 1988, Swaziland registered an increase of over 200 percent in numbers taking its primary-certificate examination and an increase of over 1,000 percent in the numbers taking the junior-secondary school-certificate examination. In Ethiopia, over a much shorter time span (1979-87), primary-certificate candidates have shown a 240 percent increase, junior-secondary certificate candidates a 260 percent increase, and senior-secondary certificate candidates a 400 percent increase. In general, the higher the level of the examination, the greater has been the rate of increase.

As we noted in Chapter 1, increases in the numbers taking examinations, as well as in enrollments generally, have been associated in people's minds with declining standards in education. This has been particularly so when resources to deal with this expansion have not been available. The increased numbers have also forced a reconsideration of the content of curricula in schools. An academic type of curriculum, which might have been suitable when access to education was limited, is not likely to be suitable when all or most of the population attend school. Curriculum change has obvious implications for the nature of examinations, implications that relate not just to content but to function. It is increasingly recognized that the dominant selective function of examinations must give ground to the certification function. Just as curriculum change has implications for examinations, examinations may have implications for curriculum. For this reason, changes are being introduced to the examinations of several countries, including content and skills appropriate to the wider range of achievements, needs, and interests represented in the growing numbers of students taking examinations, to stimulate beneficial effect on curricular practice in schools.

Expanding enrollments will continue to be a pressing issue for many examination systems. For educational authorities they will lead to a demand for greater resources and to changes both in the content and function of public examinations.

Resources for Examinations

Examination authorities appear to devote virtually all of their time and resources to the administration of the national examinations. Frequently they are understaffed. With a few notable exceptions, relatively little or no time is given to systematic analyses to improve examination quality. Indeed, most authorities do not have the research capability to undertake this task. Frequently, skilled personnel are not available within the country. In a number of instances, however, people with formal training in psychometric techniques have been assigned to other sectors within education ministries. In Zambia, staff shortages within the Examinations Council have resulted in members of its Department of Research and Test Development having to devote most of their time to item-writing and pretesting.

In general those responsible for the construction of examinations have had little or no relevant formal training. Many, of course, acquire skills through experience. However, weaknesses could be avoided if adequate training facilities were available. According to one national report (Ethiopia),

> ...among the weaknesses observed in some papers were unclear instructions, poor grammar, placing of questions some pages from the passage on which they are based, use of interrelated questions, (for example, the stem of a question prompts the answer to an earlier question), and inadequate supporting art work" (p. 40).

Governments and examination bodies will have to address the issues raised by staff shortages and lack of trained personnel.

Effects of Examinations on Curriculum and Teaching

We have already noted in Chapter 1 that whenever the results of external examinations are an important determinant of future education and life chances or are used to evaluate teachers, the examinations will be taken very seriously by teachers and students. In this situation, teachers pay particular attention to the "tradition of past examinations." Having identified the content and skills covered in previous examination questions, they coach students in the identified content and skills. This can have positive effects on curriculum. For example, in Lesotho, the marks (25.0 percent) in the Junior-Certificate Examination awarded for practicals help to ensure that this aspect of the curriculum is covered throughout the school year. In Kenya, by including items that relate to local conditions and that attempt to measure higher-order cognitive skills in the KCPE, the Kenyan National Examinations Council has drawn teachers' attention to a new range of knowledge and skills.

However, when people talk about the "tradition of past examinations" defining curriculum in schools, very often they are referring to negative effects of this tradition.

What they mean is that teachers are probably spending inordinate time in simply working for the certifying tests, often at the expense of subjects and skills not tested in the examination.

The narrowing effects of the public examinations on curriculum have been commented on in most of the national reports and reinforce the findings of research in a variety of countries relating to the effects of examinations that we outlined in Chapter 1. In Ethiopia, curriculum areas that tend to receive relatively little attention in the classroom include writing, vocational, oral and aural skills, use of reference material, and practical work in science. In Madagascar, subjects such as music and physical education, which are not examined, tend not to be taught in primary schools. In Zambia, local languages, practical subjects, and production activities are not formally examined and consequently are undervalued in schools. In Zambia as well as in Ethiopia, where the primary school-leaving examinations are limited to multiple-choice items, writing skills receive inadequate attention. In Cape Verde, the status of subjects such as visual education, handicraft, and physical education is diminished as these are not tested when ascertaining who is to be promoted. The Mauritius report observed that the highly competitive Certificate of Primary Education Examination has led to "a neglect of broader curriculum goals not included in the CPE syllabus" (p. 34).

The importance of examination results for the pupil and for the teacher is reflected in the amount of time spent fostering test-taking strategies. A recent report from Uganda observed that "the system is so exam ridden that the entire teaching and learning is geared to passing the exam and getting the good marks needed for entry to higher levels of education" (Uganda, Ministry of Education 1989, p. 7). In Zambia, "even against their better professional judgment," teachers feel compelled to direct their efforts to obtaining good examination results, "out of a concern for their pupils, and to safeguard their own reputations" (Kelly, Nkwanga, Achola, Kaluba, and Nilsson 1986, p. 551). Teachers in Cape Verde make extensive use of the examination papers from previous years; virtually all of the time spent in school is devoted to preparing students for examinations. Practice in examination-taking techniques is also a feature of primary education in Mauritius and Mauritania. In Ethiopia and Madagascar, routine classroom examinations reflect closely the item types used in the official examination. Teachers in Ethiopia and Kenya use the multiple-choice format of the national examination in their regular classroom tests as early as the junior primary grades. Indeed, teachers have been observed to use the multiple-choice format not only in examining but in teaching, as early as in the first grade.

The amount of time teachers in a number of Francophone countries are required to devote to formal assessment must of necessity limit teaching time. For example, in Togo, Madagascar, and Guinea, teachers are expected to administer monthly, trimester, and end-of-year examinations.

Examinations are often regarded as an important source of motivation and as encouraging teachers and students to work hard. By targeting important elements of the curriculum, they can focus student learning and may raise students' levels of achievement. And success on a public examination is an achievement of significance not alone for students but also for parents and teachers. The significance of passing the Kenya CPE examination in the eyes of one young candidate is well portrayed in an essay written during the examination (Appendix 3).

Evidence from a number of countries, such as Mauritania and Zambia, however, indicates that examinations tend to promote a passive concept of learning. Furthermore, since scoring high marks in examinations becomes the dominating interest of pupils, "pupils who cannot secure places at the next educational level are stigmatized as failures. There is even some tendency to judge the personal worth of an individual on the basis of his examination performance" (Kelly 1986, p. 26).

Examination authorities must take into account that while motivating students and teachers, important public examinations also help to ensure that curriculum content likely to be tested will be covered by teachers; that subjects that are not tested tend to receive relatively little teaching emphasis; that considerable class time is devoted to fostering test-taking strategies; and that passive concepts of learning are promoted. In addition, society at large and, in particular, pupils themselves frequently equate examination performance with personal worth.

Reducing the Burden of Examinations and Introducing School-based Assessment

In a number of countries, efforts are being made to reduce the burden of examinations. Three broad strategies to achieve this can be identified, although it is not usually clear in the case of individual countries what strategy will eventually be adopted.

One strategy involves the reduction of the number of public examinations through the abolition of examinations and certification at particular points in the educational system. For example, in Kenya, public examinations and certification no longer occur at the end of the junior cycle of secondary schools, while other countries (Cape Verde, Ethiopia, Guinea) plan to reduce the number of their examinations.

In the second strategy, procedures are already in place or proposals exist to allocate a percentage of public-examination marks on the basis of school-based assessment. The school-based assessment could be used in areas in which a terminal external examination is inappropriate, for example in the assessment of practical or project work, or it could be more general and overlap with elements of the external assessment.

Examinations in Ethiopia (at the primary level) and in Lesotho (at the junior-secondary level) already have elements of school-based assessment. There is also a definite commitment in a number of countries (Lesotho, Swaziland, Uganda, Zambia) to make school-based assessment an important feature of public examinations. However, this is being done with caution. For example, in Zambia, the recommendation is that continuous assessment in the public-examination system should be confined to performance in practical subjects (Zambia, Ministry of Education 1977). A recent report in Uganda contained a strong recommendation that school-based continuous assessment should account for 20 percent of the marks allocated for each subject in the primary school-leaving examination (Uganda, Ministry of Education 1989). The assessment, which would be moderated by the school inspectorate and officials of the Uganda National Examinations Board, would include assessment of performance in class, of participation in community projects, and of creative activities. In Swaziland, it is hoped that school-based assessment will eventually receive a weighting of 50 percent of the total mark in the primary-certificate examination.

A third possible strategy is to base certification entirely on school-based assessment. This is not envisaged in any country in our study in the immediate future.

Arguments can be advanced in favor of and against school-based assessment (Heyneman 1988; Pennycuick 1990). Arguments in favor go as follows:

- Since assessment by teachers is a crucial component of good learning and teaching, every effort should be made to improve teachers' competence in this area (Crooks 1988). If school-based assessment becomes part of the certification process, it is likely that greater effort will be invested in improving teachers' general competence in assessment, and this should have beneficial effects on teaching and learning.

- School-based assessment provides immediate feedback information to teachers on student achievement and teaching effectiveness.
- Since school-based assessment is carried out over time and by a person who knows students well, it is likely to provide a more valid and reliable appraisal of a student's achievements than can a single external terminal examination. In this context, one commentator in Zambia has observed that the school is "the only place where there is enough information to do reasonable justice to a pupil" (Kelly 1986, p. 20).
- School-based assessment permits an extension of the range of curriculum topics which are examined. The present system of examinations limits the range of achievements that can be assessed and must narrow the curriculum in schools. Aspects of achievement that cannot be satisfactorily assessed in a terminal examination include a student's ability to plan and organize a project and persevere with it over time. While the assessment of oral and practical skills may be carried out in a terminal examination, inevitably it will be limited, artificial, and expensive.
- School-based assessment reduces the undesirable back-wash effects of external examinations.
- School-based assessment, if spread over the year, can increase the level of pupil motivation and application throughout the year.

Some of the following arguments advanced against the use of school-based assessment in the certification of students:

- Its use can change the nature of the relationship between teachers and students towards making the judicial aspect of the teacher's role more prominent.
- Marking standards in school-based assessment are likely to vary both within and among schools. While moderation procedures can help, they tend to be expensive.
- School-based assessment can subject teachers to considerable parental pressure, especially during the periods leading up to and immediately after critical public examinations.
- School-based assessment would require teachers to devote more time to assessment and recording.
- School-based assessment gives rise to a variety of administrative problems for schools, such as what to do when students are absent for tests or when students transfer from one school to another.
- Teachers' assessments are subject to a variety of biases.
- In many instances, it is difficult if not impossible to apply school-based assessment to non-school-based candidates.

Such considerations led the participants in a conference on school-based assessment in Swaziland to conclude that if such assessment is to be used in combination with external-examination results in the final national summative assessment of students, a number of conditions should be fulfilled to at least mitigate, if not completely remove, the problems to which its use is likely to give rise. First, national item banks of tests should be available to teachers. Second, clear guidelines for assessment should be provided. Third, procedures for recording and interpreting should be common to all schools. And fourth, standards between schools "should be controlled statistically" and should be moderated and controlled by school inspection (Swaziland, Ministry of Education 1987).

Clearly advantages and disadvantages are associated with both school-based assessment and external examinations. Individual countries should consider the appropriateness of these procedures for the conditions in which their educational systems operate—the pressure for selection, the level of training of teachers, and the availability of resources to support either a school-based or external system of assessment. When selection is an important issue, any consideration of a system in which teacher assessments are a basis for important decisions about students must recognize that the assessments should not only be accurate but should be perceived to be so. To achieve this situation, teachers would require the support of a high level of training and a range of services, including guidance and secretarial support. In many countries outside Africa in which school-based assessment is used, teachers also have available a range of aptitude and achievement tests that can be used to set objectives, to monitor standards, and to provide a basis for student guidance. The problems that can arise when school-based assessment is introduced into a system in which classes are large and the necessary resources are not provided have been documented in Lesotho (Sebatane 1985) and in Nigeria (Ali and Akubue 1988).

The issue of school-based assessment is a very live one in many countries. As educational systems develop and expand and as the pressure for selection eases, we may expect a decline in the need for external examinations. Countries will reach that point at different dates. As they work towards it, investment in the development of the required infrastructure for an effective system of school-based assessment (including teacher training) should have the short-term effect of improving the quality of assessment and instruction in schools.

Consideration should be given to increasing the role of school-based assessment. This will require extensive pre-service and in-service teacher-training programs as well as other resources.

Use of Multiple-Choice Tests and Their Associated Technology

Partly as a result of the growth in the numbers of students taking examinations, there has been an increase in many countries in the use of objective multiple-choice tests. In our study, half the countries used such tests in their primary-school certificate examinations. Such tests are cheaper to score when large numbers of candidates are involved. They are likely to be more reliable and to provide broader curriculum coverage than essay tests. They also make the provision of feedback on student performance easier. Related to the use of objective tests has been the growth in pretesting of items, in mechanical marking, and in the use of computers to process results. Despite the apparent advantages of these procedures, the use of objective tests and the technology usually associated with them, some of which can be applied to more traditional kinds of examinations, can cause a number of problems.

The first problem arises from the fact that the selective role of examinations may be reinforced by the introduction of computer technology and the ease with which statistical procedures can be used to standardize marks and determine cut-off points for grades on the basis of the number of students obtaining certain scores. This can happen both with examinations that use multiple-choice tests and ones that do not.

A second problem is that the new procedures, especially the selection of items that have high indices of discrimination for multiple-choice tests, tend to reinforce the view that the latent-trait model of classical psychometric theory adequately represents the school achievements of students. The assumptions on which this approach is based—

that when many discrete behaviors co-vary, they have a single underlying determinant, of which individuals possess varying amounts—can be challenged even in the case of western students (Christie and Forrest 1981). Their validity is more doubtful in the case of students who live in two cultural worlds, with all that implies in terms of language use, modes of cognitive functioning, and methods of learning (Kellaghan 1961, 1968).

Rigid adherence to a policy of discarding items with low item-test correlations runs the risk of eliminating items that prove to be either very easy or very difficult (Greaney 1980). Thus, the routine discarding of items that have low correlations with the total test score also runs the risk of making the test less representative of the defined universe (Cronbach 1971; Kwasna 1974; Quansah 1985).

A further problem arises from the fact that the introduction of the new technical developments led in some countries to dropping essay examinations and to a heavy reliance on multiple-choice tests. An examination system made up only of multiple-choice items has several disadvantages. For one thing, it cannot measure some of the outputs of education that most people would regard as important, such as oral and practical skills, including the ability to write continuous prose. Further, multiple-choice tests are most efficient in measuring recall and recognition of factual information; it is extremely difficult to construct such tests to measure higher-order skills. Limiting an examination to multiple-choice items is likely to have undesirable effects on what goes on in schools since, in preparing students for the examination, the temptation will be to pay little attention to skills other than those which can be measured by the test. If higher-order and writing skills do not form part of public examinations, they are not likely to receive the attention they should in schools.

Examination authorities should be sensitive to the fact that while multiple-choice tests offer the benefits of efficiency, test reliability, and potential for feedback to teachers, they are subject to a number of serious limitations. These include unduly arbitrary use of standardized marking schemes and cut-off scores attributable to the ready availability of computers, an assumption of a unitary achievement trait, psychometric procedures that reduce the content validity of a test and the neglect of important educational skills not amenable to multiple-choice test assessments. Since decisions about students are likely to be more valid and fair when based on multiple sources of information, insofar as it is feasible, candidates should be required to demonstrate their knowledge and skills in a variety of contexts.

Validity

Validity is concerned with the appropriateness of descriptions, inferences, classifications, or decisions that are made on the basis of examination results. As far as curriculum validity is concerned, the responsibility for determining that questions in public examinations reflect adequately the official curriculum rests ultimately with the body entrusted with the operation of the examination system. If an examination is to possess curriculum validity, individual questions should represent a balanced and adequate sampling of the curriculum course. While some systems, such as in Swaziland, take the precaution of using moderators to establish the extent to which the elements of the prescribed curriculum are covered, others, for example Madagascar and Togo, simply select questions from lists submitted by teachers.

Part of the reason for the lack of adequate curriculum coverage in examinations is that student selection is a major function of the examinations. An examination can be an efficient selection instrument even if large sections of a curriculum are excluded from it. Further, since an examination designed for selection will have as a major interest discrimination between students close to the cut-off point for selection, questions included may be too difficult for the general body of candidates, something that is borne out by the poor level of student performance on many public examinations in Africa.

Despite the emphasis on selection in public examinations, study of the predictive validity of performance on the examinations has received little attention. The limited available evidence is not very encouraging. In one study in Ethiopia, students' performance on the ESLCE mathematics examination did not predict success in first-year mathematics in the university (Asmerson and others 1989). A somewhat similar study conducted by the University of Zambia concluded that the low predictive validity of examinations rendered their use for selection at all levels problematic (Kelly and others 1986).

Attempts have been made in a number of countries to improve aspects of the validity of examinations. One such attempt involves the pretesting of items used in multiple-choice tests, a device that, it might be argued, should improve curricular validity. However, pretesting may not have this effect (Madaus, Airasian, and Kellaghan 1980). Selection of items of intermediate levels of difficulty for the final test, like the use of high discrimination indices, runs the risk of making a test unrepresentative of the defined universe. Such a practice is more likely to contribute to instructional validity (what is taught in schools) than to curricular validity (what is laid down in the curriculum), since only items that a given proportion of pupils (about half) get right will be retained in the test. Thus, only items pupils have had the opportunity to learn (presumably in school) will find their way into the test. If schools consistently ignore aspects of the curriculum, items relating to those aspects will not be included in the test, creating a situation in which certain curriculum areas are not tested (Kellaghan 1990).

However, discarding items that do not exhibit intermediate levels of difficulty will also affect a test's instructional validity since material that is well taught will be excluded from the test. It is thus important that decisions to include items in a test should not be based on the common practice of selecting only items of intermediate level of difficulty, which will maximize a test's ability to discriminate between student performances, but, at the same time, will reduce its curricular and instructional validities.

An alternative to norm-referenced standardized tests was proposed in the Mauritius report. It suggested that a pass should be redefined in terms of essential competencies for primary-school graduates rather than in terms of standardized scores. Each letter grade would be defined in criterion- rather than in norm-referenced terms, and grades would indicate the performance levels of students. The approach would also have the advantage of lending itself more than norm-referenced procedures to the monitoring of changes in achievement standards over time. Since a criterion-referenced approach might not adequately serve the selection function of the examination, the Mauritius report goes on to recommend that students in the top grades, such as A and B, be ranked for selection purposes. While the proposal has much to recommend it, the difficulties of specifying essential competencies should not be underestimated.

A body responsible for the construction of examinations has a clear obligation to attend to validity issues. In this, the need to achieve balance between the certification and selection functions of the examinations must be kept in mind. The examinations body should ensure that the procedures it uses in the construction of examinations are more likely to contribute to, than to interfere with, the examination's validity. If examinations are used for selection, the examination body should accumulate evidence to show how well performance on examinations reflects real-life educational performance.

Accountability

Examination results are sometimes used as a measure of school effectiveness. When this occurs, teachers and others tend to be held accountable for the performance levels of students. Frequently, successful performance is equated with the percentage of candidates who advance to the next highest level of the educational system.

In Kenya, national and provincial rankings of schools based on public examinations are published annually to provide the public with an opportunity of comparing schools. In districts that occupy the lower end of the merit order, teachers may be accused of being lax, administrators of not performing their supervisory duties, and parents of not being "development-minded" (Oloo 1990). Zambian teachers also tend to be blamed if too few of their pupils are selected on the basis of examination results for further schooling. "Good" teachers in the Prai region of Cape Verde are those who attain a promotion rate of 50 percent at the end of the school year. Examination performance is used by the Ministry of Education in Swaziland and by the general public as a measure of school effectiveness. In Lesotho also, examinations serve an accountability function; teachers and schools with high examination marks are usually regarded as "good." In Uganda, where most of the school fees are paid by parents, examination results can have a fairly rapid impact; "good" results tend to increase the pressure for school places.

The ranking of school districts or schools is more complicated than current practice would seem to acknowledge. In fact, inferences made about the "effectiveness" of schools or districts on the basis of rankings may be inaccurate and unfair. First, it has been shown in the United States that rankings can vary greatly depending on the school outcome that is used (Guskey and Kifer 1990). Second, comparisons between schools on the basis of examination results generally fail to take into consideration the social or even physical conditions under which schools operate. However, if statistical adjustments to school outcomes are made on the basis of student characteristics and their backgrounds, level of teacher qualification, and availability of material resources, a very different order of merit might emerge. Third, whether or not adjustments are made to school-output measures, errors in the measurements on which rankings are based are not likely to be taken into account when judgments of merit are being made about schools. For example, will observers know that the difference between a rank, say, of 35 and one of 38 may only be a matter of chance? Finally, in cases in that parents or students have a choice of school, the publication of results may lead to schools that are perceived to be doing well to attract students of high levels of scholastic ability, aspiration, motivation, and parental support while those that are perceived to be doing badly, even though they may be more "effective" than schools with better results, will be avoided by such students. This situation in time could lead to low morale in individual schools and to a ghettoization of the school system.

The effects on schools of using examination results as an accountability mechanism demands immediate attention from education authorities. In particular attention should be directed to the identification of "successful" and "failing" schools and teachers on the basis of examination results and to the publication of school rankings.

Language of Examination

In thirteen of the fourteen countries in our study for which data were available, there was an average of 4.7 principal languages (i.e., indigenous languages spoken by at least 10 percent of a country's population and any other language that serves as an official language, lingua franca, or medium of instruction) (World Bank 1988, Table B-12).

This situation creates serious problems relating to language of instruction and language of examinations. Countries have adopted a variety of strategies to deal with the situation and, in some cases, have changed these strategies over time. The most common practice is to use a local language for instruction in the early grades of primary school. In some countries, the relevant international language (French or English) is also used at this stage. The medium of instruction in the higher grades of primary schooling in most countries is officially either French or English. In all countries, French or English is the medium of instruction in secondary schools, except in Cape Verde, where it is Portuguese. In some countries, some schools also provide instruction in an alternative language, for example, Arabic in Mauritania. In all cases, with the obvious exception of language subjects, the language of examinations is the same as the official language of instruction.

For the majority of pupils in the countries in our study, the language used in instruction and in examinations (English or French) was not their mother tongue. We know relatively little about the difficulties that African students experience in the acquisition of a second language or about how education through the medium of a second language affects the quality of that education. Not surprisingly, some commentators have attributed low levels of achievement in public examinations to the language difficulties of students (Eisemon 1990). In Mauritius, for example, where the *lingua franca* is Creole, some candidates' poor examination performances is due to a failure to understand questions set in English. The low pass rate (38.8 percent) recorded by Madagascar students in the Technical *Baccalauréat* has been attributed to the extensive use of French in the educational system. In Ethiopia, where English is the medium of instruction in secondary schools, it is accepted that there will be a move towards assessment in Amharic in the Grade 8 and ESLCE public examinations.

The choice of language for examinations has to be considered in the wider context of choice of language of instruction. The decision is a difficult one for many countries and requires continued research, analysis, and review.

Comparability of Performance

Possession of a certificate, such as a primary school-leaving certificate, would imply that students had attained an acceptable and comparable level of performance in defined achievement areas. Further, one might assume that the certificated students had addressed themselves in examinations to the same tasks under similar conditions. However, current practices in some countries related to "compensation" raise a number of issues that suggest that these assumptions may not be tenable. Basically, the practice of compensation involves allowing credits or marks that a student has achieved in one curricular area to make up for a relatively poor performance in another area. Questions obviously arise about the comparability of students' achievements when different achievements are involved or when the achievements are measured in different ways.

In Guinea adjustments are made to examination marks to take into account the fact that some teachers may not have covered certain elements of the curriculum, again raising the issue of comparability of results. Cape Verde students are exempted from an oral examination if they achieve a certain level of performance in the written test. In fact students may gain exemption from each of the three national examinations on the strength of their performances on internal school-based examinations. A Togo candidate who scores less than 10 but at least 9 out of 20 can compensate for this relatively low mark by taking an oral examination. In the Ethiopian Grade 6 and Grade 8 examinations, it is possible to compensate for poor performance levels in certain subjects. For example, candidates who score poorly in Amharic, English, and mathematics, three important subjects at subsequent educational levels, can qualify for a certificate by moderate to good performance in political education, general science, and social science.

In Lesotho a first-class pass is awarded to primary certificate candidates who obtain a grade of at least 60 percent in English, Sesotho, and mathematics and at least 60 percent in the examination as a whole. To obtain a second-class pass, a grade of at least 50 percent has to be obtained in these three subjects and at least 50 percent in the overall examination. A third-class pass is awarded to candidates receiving 40 percent in any three subjects and also on aggregate. A student who obtains 90 percent in all subjects with the exception of, say, English, in which he or she gets 40 percent, would merit only a third-class pass. It could be argued that the overall performance of this candidate is superior to that of another who obtained a first-class pass by scoring 60 percent in all subjects.

In these examples, it is often difficult to determine what possession of a formal certificate means in terms of levels of scholastic achievement since students' achievements are assessed in different ways. However, the use of different modes of assessment does not necessarily give rise to this problem. While it may have this effect, multiple measures of achievement can be useful in allowing a person to exhibit a particular skill, trait, or achievement.

Examination bodies that use compensation procedures should ensure that these do not give rise to ambiguities in the interpretation of examination performance.

Quotas

To meet social or political objectives, quotas are used in some countries, along with examination results, to control student flow to the next highest level. In effect, quota systems guarantee that a certain number of candidates from a particular category, who otherwise would not advance to the next level, do so. Where this happens, the success of these candidates occurs at the expense of other candidates who would have advanced had no quota system been in operation.

Following the correction of the *concours* at the end of primary schooling, the Rwandan Ministry of Education selects students for secondary schools, bearing in mind the need to have regional, ethnic, and gender balance. Mauritius also uses a gender quota; the top 2,000 boys and 2,000 girls on the primary school-leaving examination are offered places in secondary school. Both Mauritania and Ethiopia set pass marks that vary from region to region. In Ethiopia, the selected passing raw score is transformed into a percentile rank derived from the distribution of aggregate scores for all candidates. Regional officers are instructed to determine the passing raw scores for their regions by identifying the aggregate score that corresponds to the nationally selected passing percentile rank. The effect of this on the Grade 6 National Examination in 1987 was that while the passing raw score in Eritrea was 42, in Gojam it was as high as 47. Thus, for many Ethiopian students, success or failure depended on place of residence.

One effect of the operation of quota systems is that students change their place of residence or their names to improve their chances of selection.

The quota system enables examination authorities to examine the predictive validity of selection procedures. To do this, the secondary-school performance of students who were selected on the basis of their examination performance is compared with the performance of students who would not have been selected on their examination performance but gained entry to secondary school because of quota requirements.

The social, political, and educational implications of quotas merit serious consideration and monitoring.

6 Using Examinations to Improve Education

In considering the role of examinations in educational reform, one should not lose sight of the range of problems facing education in Africa. The extent of these problems varies from country to country, but all countries to a greater or lesser extent, face problems relating to accommodation, the relevance of curricula, availability of books and materials, and teacher training. Furthermore, these problems in the educational system co-exist with, and often are caused by, economic and social problems in the wider society. Problems such as these are not going to be solved by improvements in examination systems alone. However, examinations could play a role in the reform of educational systems and in improving the quality of education in schools. At the very least, good assessment procedures must be better than bad ones. Furthermore, despite the problems that will arise in implementing some reforms, such as in measuring and teaching higher-order skills and in providing feedback information to schools, attempts to do these things are preferable to continuing with examination systems that, in many countries are regarded as obviously defective in many ways. Besides, there are some recommendations that can be made, which can hardly be regarded as controversial, such as the need to include in examinations assessments of students' ability to write if writing is to receive the attention it merits in schools.

We have seen that examinations occupy a key role in the educational systems of the countries considered in this report. This is partly because of a resource problem, in particular the inability of educational systems to accommodate all students who wish to remain at school. In this situation, examinations are used as the means of allocating places to students. Whatever decisions are taken about assessment and examinations procedures, it has to be recognized that the need will remain, for some time at any rate, to operate a system of selection that is perceived to be fair and equitable. And if there has to be selection, it has been argued, for a long time in European countries (Curriculum and Examinations Board - CEB 1985) and currently in developing countries (Heyneman 1985), that examinations are a more equitable way of doing the job than other procedures that have been tried. Even if examinations continue to be used for selection, this does not mean, of course, that efforts should not be made to improve them as instruments of certification also.

In this chapter, for the fourteen countries in our study, we present the proposals which were set out in action plans for changes in examination systems which, it was believed, would lead to an improvement in the quality of examinations and of education. Following that, we provide some guidelines which, if followed in the implementation of action plans, should result in the improvement of examinations. After that, we consider problems and undesirable effects that can arise from certain kinds of examination reform. Finally, we outline conditions that should be present in the administration of examination authorities if these authorities are going to be in a position to support examination reform.

Action Plans

Each of the fourteen countries prepared an action plan designed to improve the quality and functioning of its examination system. A tabular summary of the plans is provided in Table 5.1, separately for Anglophone, Francophone, and other countries. The objectives of the action plans can be categorized as relating to Administration, Technical and Training Requirements, Equipment, and Construction/Rehabilitation. It should be pointed out that the objectives were not stated with similar clarity in all the reports.

Administration

Expand Examination System. The problems caused by the substantial increase in enrollment figures in general, and in the number of candidates taking public examinations in particular, are reflected in the plans to increase the administrative capabilities of public-examination authorities. Five of the six Anglophone countries and Ethiopia indicated a need to provide for the expansion of their examination systems to cope with anticipated increases in numbers.

Localize Examinations. Three countries (Lesotho, Mauritius, Swaziland) plan to localize public examinations by developing alternative examinations to those prepared by overseas agencies. The challenge for these countries is to develop within their examination systems the ability to design, print, mark, and validate examinations while maintaining public confidence by ensuring that the new examinations retain the status of external examinations such as those presently offered by the Cambridge Overseas School Certificate Examination Syndicate.

Phase Out Examinations. In 1987, the Kenya National Examination Council discontinued the Kenyan Certificate of Education. Guinea, Cape Verde, and Ethiopia plan to reduce the number of public examinations which they offer. Ethiopia, for example, has indicated its intention to eliminate the Grade 6 National Examination when the shortage of junior-secondary school places is overcome.

Centralize Examination Authority. Three countries (Cape Verde, Ethiopia, Mauritania) have indicated a desire to centralize responsibility for public examinations within one agency. In this way it is hoped to make the system more efficient through a sharing of scarce resources. In Ethiopia one central system is planned as a replacement for the Ethiopia School-Leaving Certificate Examination Office run by the University of Addis Ababa and the National Examination Board of the Ministry of Education which has responsibility for the Grade 6 and Grade 8 national examinations.

Centralize Operation of Examinations. Assigning printing and packaging of examination papers to an external agency increases the likelihood of a breach of test security. Three large countries (Kenya, Uganda, Zambia) propose to assign responsibility for all aspects of public examinations to one agency. At the moment, to cite but one example, the Kenya National Examination Council could achieve substantial savings if it were in a position to transfer the printing of examination papers to an in-house facility.

Create a Technical Bureau/Support Unit. The need for the creation of a technical bureau or support unit to develop tests, to provide training, and to evaluate and carry out research on aspects of the examination system has been identified in five of the Francophone countries (Chad, Guinea, Madagascar, Mauritania, Togo.) In Madagascar, for example, it is hoped that this new unit might take responsibility for improving school-based assessment techniques, developing standardized tests, and carrying out specialized studies designed to inform those responsible for decision making.

Table 5.1
OBJECTIVES IN DRAFT PLANS

Administration	Kenya	Lesotho	Mauritius	Swaziland	Uganda	Zambia	Chad	Guinea
1. Expand system to deal with increasing numb	X	X		X	X	X		X
2. Localize all exams		X	X	X				
3. Phase out exam(s)								
4. Centralize responsibility for exams within one agency								
5. Allow agency to assume responsibility for all aspects of exams (e.g. printing)		X						
6. Create technical bureau / support unit to develop tests, provide training/evaluation					X		X	X
7. Improve efficiency of exams by strengthening management structures	X	X		X	X	X		
Technical and Training								
1. Improve quality of exams (improve exam-syllabus linkage, introduce criterion-referenced tests)	X	X	X	X	X	X	X	X
2. Improve assessment, research and development capacity of systems by improving technical training/resources (e.g. library)	X	X	X	X	X	X	X	X
3. Involve teachers more in assessment as a replacement for, or in conjunction with, public exams		X	X	X			X	
4. Develop capacity to provide feedback information on public-exam performance to schools	X	X		X	X			
5. Provide training for MOE officials (school inspectors)/ teachers/counsellors in assessment and exams		X	X	X	X	X		X
Equipment								
1. Improve efficiency of exams through provision of equipment	X	X	X	X	X	X	X	X
Construction/Rehabilitation								
1. Extend/improve accommodation for administration of exams	X	X		X	X			

Table 5.1 (continued)

OBJECTIVES IN DRAFT PLANS

Administration	Madagascar	Mauritania	Rwanda[a]	Togo	CapeVerde	Ethiopia
1. Expand system to deal with increasing numbers						X
2. Localize all exams						
3. Phase out exam(s)					X	X
4. Centralize responsibility for exams within one agency		X				X
5. Allow agency to assume responsibility for all aspects of exams (such as . printing)						
6. Create technical bureau/support unit to develop tests, provide training/evaluation	X	X		X		
7. Improve efficiency of exams by strengthening management structures						X
Technical and Training						
1. Improve quality of exams (improve exam-syllabus linkage, introduce criterion-referenced tests)[b]	X				X	X
2. Improve assessment, research and development capacity of systems by improving technical training/resources (e.g. library)	X	X		X	X	X
3. Involve teachers more in assessment as a replacement for, or in conjunction with, public exams		X			X	X
4. Develop capacity to provide feedback information on public-exam performance to schools						X
5. Provide training for MOE officials (school inspectors)/teachers/counsellors in assessment and exams	X	X		X	X	X
Equipment						
1. Improve efficiency of exams through provision of equipment	X	X		X	X	X
Construction/Rehabilitation						
1. Extend/improve accommodation for administration of exams						X

a/ Being finalized
b/ Recommendations to produce tests of "creativity," "intelligence," "visualization," are not included here.

Improve Management Efficiency. A total of ten of the fourteen countries specified the need to improve the efficiency of public examinations by strengthening management structures. In many instances, the lack of autonomy of the examination body was cited as a factor which restricted the efficiency of the examination system. There is also a need for a substantial recruitment and training program to equip management personnel with relevant skills and knowledge. Salary scales should be sufficiently attractive to discourage skilled personnel, such as in the area of computing, from seeking employment elsewhere.

Technical and Training Requirements

Improve Examination Quality. Considerable agreement is to be found in the action plans regarding the need to improve the quality of public examinations. Each of the fourteen countries specified that it needed technical assistance in this area. Many recognized the need to improve the validity of their public examinations, in particular to improve the link between the content of examination questions and the syllabus. Psychometric support was also called for to help, among other tasks, to develop item banks and construct adequate assessment instruments. A number of examination bodies recognized the need to introduce new modes of examining, involving oral, aural, and practical tasks.

Improve Research and Development Capacity. The need to introduce or improve the capacity of the examination system to conduct research directly related to public examinations was recognized in each of the fourteen countries. In Swaziland for example, it was proposed that this research would include validity studies, monitoring the implementation of a proposed continuous-assessment system, and the effects of changes in the system on the internal and external efficiency of the educational system (dropout, repetition, levels of achievement.) In most instances, it is envisaged that foreign training will be required to enable personnel to acquire the appropriate research skills. In addition to training, research, and development, personnel will need to have access to libraries equipped with appropriate technical books, journals, and sample assessment instruments.

Involve Teachers in Assessment. Slightly over half the countries identified the need to increase teachers' involvement in the assessment process. In some instances it is envisaged that assessment by teachers would eventually replace some external examinations. Most systems, however, favor the involvement of teachers in providing part of the overall assessment in a particular subject examination. For Mauritius for example, it is suggested that, following the training of teachers in assessment techniques, the Certificate of Primary Education would show the teacher's grade in addition to the external examination grade for each subject.

Develop Feedback Capacity. Four Anglophone countries (Kenya, Lesotho, Swaziland, Uganda) and Ethiopia stressed the need to develop the capacity of the public-examination system to provide feedback information to schools on aspects of students' performance on examinations. It is believed that such information could contribute to the quality of teaching and learning in the schools by identifying aspects of the curriculum that appear to be misunderstood or simply ignored by examination candidates. Feedback information can also be useful to educational authorities by identifying regional disparities in achievement and aspects of the curriculum where candidates fare poorly, possibly due to lack of appropriate equipment, for example in physics and chemistry.

Provide Training for Inspectors and Teachers. Virtually all countries recognize the need for the training of Ministry of Education officials, school inspectors, and teachers in assessment terminology and procedures. In-service training seems particularly necessary to familiarize teachers with the techniques required to conduct school-based assessment. Zambia's proposal envisages that as many as 10,000 secondary-school teachers would attend a ten-day in-service training course over a four-year period. Cape Verde authorities propose that a foreign expert should train a cadre of people who in turn would become trainers of others.

Equipment

All action plans indicate a need for equipment. Specified needs relate mostly to the production of examination papers, such as printing equipment, and the processing of examinations. Data-processing equipment is required for scoring multiple-choice examinations, the preparation of results, and for storing of assessment information. Mainframe and micro-computers have been requested. Books and journals on testing and measurement have also been listed. Other equipment that is frequently requested includes typewriters, photocopiers, and paper. A number of countries have asked for furniture, (Madagascar and Togo), and motor vehicles, (Lesotho and Mauritania).

Construction/Rehabilitation

Four Anglophone countries, three Francophone countries, Cape Verde, and Ethiopia include specific requests for construction and/or rehabilitation of buildings. Kenya and Uganda require the construction of large buildings to house printing equipment. The Ugandan proposal outlines the need for a building to house, in addition to printing equipment, a computer facility as well as rooms for desktop publishing. Other countries, for example Togo and Chad, require the construction of buildings to accommodate all examination board personnel. Lesotho and Madagascar have indicated that their examination offices are badly in need of repair and improvement.

Cross-National Cooperation

A number of countries referred to the benefits of cross-national cooperation in examinations but did not actually include proposals for such cooperation in their action plan. Two possible approaches to cross-national cooperation are outlined here.

First, associations of examining bodies might be formed to enable those involved in examinations to exchange information and experiences and to provide short-term training courses. Such an association (The Association of Heads of Institutions Responsible for Examinations and Educational Assessment in East and Southern Africa) already exists in the Anglophone areas of eastern and southern Africa. This association, however, is in need of financial support. There is also a need to cater for countries in non-Anglophone areas.

The second proposal for improving cross-national cooperation relates to the establishment in a university of research facilities and post-graduate courses relating to measurement, assessment, research, and evaluation. It would probably be necessary to make this provision in both Anglophone and Francophone areas.

Before this step is taken, there will be a need, as indicated in individual country action plans, to have individuals go to universities in Europe or North America for post-graduate studies. Consideration should be given to having individuals from several countries attend the same institution as this could help establish relationships which would form a useful basis for future co-operation when the individuals return to their own countries.

Improving Assessment in Public Examinations

A number of guidelines should be followed to improve assessment in the public-examination system. Before presenting them two general points about examination reform that have already been made might be repeated. First, such reform has to be considered in the general context of the educational system, not as an isolated element in it. Changes in the assessment system are likely to depend on, and to affect other aspects of the educational system. The dependence of examination reform on other aspects of an educational system is perhaps most obvious when one considers the resources that will be required to implement reform. On the other hand, the effects of reform are likely to exhibit themselves in the quality of students that are selected for further education, as well as in the character of curricula offered in schools. Second, in considering examination reform, one has to be conscious of the fact that there is no perfect system of assessment and that there is no point in looking for one. Any system will have advantages and disadvantages. This will be particularly obvious when an assessment system is used to serve more than one purpose. It is the task of individual countries, in the light of their traditions, resources, values, and needs to decide what balance of options best suits them. Since it is not usually possible to anticipate precisely the advantages and disadvantages of any system in advance, it is important that the effects of examination reform, particularly on curricula and teaching practice, should be monitored. With these points in mind, we may now turn to more specific guidelines for the improvement of assessment in the context of public examinations.

First, assessment should be based on the official curriculum. However, since not everything included in a curriculum can be assessed, the areas which are selected will be regarded by teachers and students as very important and will receive special attention. Hence, the areas selected for inclusion in examinations should cover important curricular topics.

Second, insofar as it is possible, the modes of assessment (written, practical, and oral) which are used should be diverse and should reflect the goals of curricula. What is tested is what is likely to be taught and what is not tested is likely to be ignored. Hence, if examinations do not require students to write continuous prose, the skills involved in this activity will probably not receive much attention in schools. Similarly, examinations that do not include oral or practical components are likely to lead to a neglect of skills in these areas. However, cost is a serious problem if external examiners are used, particularly in the case of oral and practical skills. For this reason, the possibility of using assessments by teachers within the school is worth exploring. If done properly, such assessments are likely to be less expensive than external ones and are also likely to be more valid. However, some system of moderation may be required if teacher assessments are incorporated into the public-examination system. In this case, it should be borne in mind that moderation can be cumbersome and expensive and, in some circumstances, quite impractical.

Third, assessment instruments should pay adequate attention to the measurement of higher-order thinking skills. Many tests, and these are the easier ones to construct, require little more than the recall or recognition of information. However, if it is agreed that "there is a need to make deep learning a central goal of education, and to foster development of this goal through the evaluation of students," then it will be necessary to "...place emphasis on understanding, transfer of learning to untaught problems or situations, and other thinking skills, evaluating the development of these skills through tasks that clearly must involve more than recognition or recall" (Crooks 1988). It is assumed in this view that the inclusion of tasks requiring higher-order skills in tests will lead to greater emphasis on teaching these skills in classrooms. There is in fact some evidence from a study carried out by Ogundare (1988) in Nigeria, in which primary-school students were taught social studies using a problem-approach method. This suggests that when this emphasis is present, not only do students acquire more facts, they also comprehend material better and are better able to apply their knowledge to the solution of new problems and to evaluation activities.

Various taxonomies have been designed to help test constructors elicit higher-order thinking skills in students. Some of these contain as many as six levels (such as Bloom 1956, Perrott 1982). However the construction of a test which distinguishes clearly between that many levels might not be possible. Problems arise particularly at higher levels designed to measure synthesis and evaluation. For example, in Britain, the specification of achievement levels within subject areas where higher-order or general skills were involved has proved very difficult in the context of developing a system of assessment for the new national curriculum (Nuttall 1990). Because of this, it is perhaps better in test construction to think in terms of a simpler taxonomy containing two levels rather than six. The first level could cover what might be called "minimal" objectives, which most students might be expected to achieve, and would relate to the acquisition of knowledge and basic skills (recall and comprehension in Bloom's taxonomy). The second level would involve higher-order outcomes, defined in terms of more complex cognitive processes. While tests of minimal objectives would examine students' ability to deal with familiar concepts and rehearsed skills, the higher-order ones would examine students' ability to apply learning to new material or situations (Gronlund 1973; Terwilliger 1989).

Even with a simplified taxonomy, it is impossible to be sure that the taxonomic level of an item will evoke the targeted taxonomic level in the candidate answering the item. Whether or not it does will depend on the learning experiences of the candidate (Torrance 1986). Bloom (1956) was aware of this when he observed that if a problem designed to measure application is too similar to problems used in class, it will measure comprehension rather than application.

A fourth guideline to be followed in the construction of examinations is that examinations should test students' ability to apply their knowledge and skills not just in scholastic contexts but in situations outside the school as well. Thus the examinations should take into account the everyday life conditions of students and the kinds of problem they are going to meet at home, on the farm, in the shop, or in the market place.

The Kenya Primary School Certificate Examination provides examples of items which relate to situations outside the school. The following are examples of such items:

> Diarrhoea is a disease that kills many babies in Kenya. When babies have diarrhoea they lose a lot of water and foods. One correct way to treat babies with diarrhoea is to:

A. keep them wrapped up and warm so that they sweat out the sickness
B. give them drinks of boiled cold water containing some sugar and a little salt
C. give them solid foods containing plenty of carbohydrates
D. give them very little food or water until the diarrhoea stops.

Wangari lives in a village with many people. From which one of the following sources can Wangari collect the best drinking water?

A. a big river nearby
B. the rain from her mabati roof
C. the dam near the village
D. a swamp on her farm.

A fifth guideline recognizes that examination scores used for selection should differentiate between candidates on the basis of characteristics relevant to the opportunities being offered. Thus, there is a need to carry out studies of the predictive validity of selection instruments.

The fact that examination scores are imperfect measures of students' achievements is the basis of a sixth guideline. It is desirable that the past performance and relevant experience of students be taken into account in making important decisions about students. This guideline points to the need to develop the capacity of teachers and schools to carry out school-based assessment that will be acceptable outside the classroom.

A seventh guideline takes up the recommendation of several commentators that detailed feedback information on the performance of students in examinations should be provided to schools and teachers. For example, Lewin (1984) has pointed out that telling a teacher that 20 percent of a class has failed does not communicate the causes of either the teacher's or the students' failure. However, if teachers were told which questions and tasks students had completed satisfactorily and which ones they had not, the information could be used as a basis for remedial action. The information would be even more useful if accompanied by an interpretation of student difficulties as well as by guidance on the design and implementation of possible remedial actions.

The most serious efforts to provide feedback information to schools have been made by the Kenya National Examinations Council. While the Newsletter of the Council is commended by Lewin (1984) as providing "excellent examples" of the kind of feedback that is likely to be helpful to teachers, it does not in fact provide teachers with the kind of information recommended by Lewin. Since the information in the Newsletter is limited to national statistics about performance, there is no way a teacher can ascertain how his or her class performed on particular aspects of the examination. Thus, the basis for remedial action is limited. While the provision of information on examination performance on a school-by-school basis would be necessary to meet Lewin's conditions, the logistical problems to which this would give rise are formidable.

The provision of detailed information on the performance of students in the hope that teachers will direct their efforts towards the topics and skills covered in examinations and thereby raise students' test performance raises a broader issue which merits attention. It is not surprising that research evidence indicates that the test performance of students will improve if they have been taught the specific material covered by a test and if they have been frequently exposed to the test format (Cooley and Leinhardt 1980; Le Mahieu 1984). However, are we justified in concluding on the basis of improved student test performance that students' actual achievement (in terms, for example, of problem-solving skills), as distinct from their test performance, has also improved? The answer would seem to be no, at least until we have satisfied ourselves that some of the variance in test scores is not attributable to the form of the test used (method of measurement) rather than to the individual characteristics (achievement) that the test is designed to measure (see Bolger and Kellaghan 1990; Campbell and Fiske 1959). Students are taught in such a way that the match between instructional processes and test items is very close, then inferences about students' actual skills and knowledge become very difficult to make. The problem is particularly acute if we want to test whether a student can apply skills and knowledge to solve new problems, since in this case, the problems must be new to the student and not ones that were taught in class. Practice on a problem may improve students' test scores; however, not only will it eliminate the possibility of drawing unambiguous conclusions about students' ability to solve problems, it may actually have the effect of interfering with the development of understanding by students (Linn 1983a, b).

This situation creates a dilemma for which there is no obvious solution. To what extent should one improve the match between testing and instruction, not only to promote appropriate curriculum coverage but also to ensure that what is tested is what is taught, if, at the same time, the ability to measure application and problem-solving skills is going to be compromised? On the other hand, should one include new problems and types of problems on examinations with the objective of assessing higher-order skills, knowing that this will create the risk of failing to measure what is taught? (Linn 1983b).

An eighth guideline relates to the assessment of the impact of examination reform on student achievement. On the basis of the previous discussion, which implies a distinction between test performance and achievement, it should be clear that the use of test instruments, which are part of an instructional treatment, to monitor the effects of that treatment, as in Somerset's (1987) Kenyan study, cannot be regarded as satisfactory. The problem in this approach concerns construct validity (LeMahieu 1984). If students' examination scores are used to assess the effect of providing information to schools about students' test performance, the sort of learning that is revealed in the examination score may be made up largely of skills that are more properly considered test-taking skills than achievement as indicated by students' ability to use higher-order skills. Indeed, as noted above, the more effective the treatment is in terms of having teachers teach to the examination, the greater will be the match between instructional processes and test items, and, as a consequence, the more limited will be our ability to draw inferences about students' actual skills and knowledge as distinct from test-performance skills. This guideline then specifies the need to use alternative methods of measuring achievement when assessing the effects of an examination reform which involves providing detailed information on students' performance to schools.

The final guideline, concerns the need to develop effective assessment strategies, distinct from public examinations, to assess the performance of the educational system and of individual institutions. One type of strategy will probably not meet the requirements of these two purposes. A procedure involving testing in a sample of schools may be adequate for the assessment of the performance of the educational system, while a more school-specific approach, which might, for example, be incorporated into the functions of the school inspectorate, will be required in the assessment of individual schools.

Anticipating Problems and Undesirable Effects

In considering proposals to improve assessment procedures and, in particular, to design examinations which will have a beneficial effect on curricula and student achievement, it is important not to underestimate the problems involved in the task (see Airasian 1988). It is also important to guard against possible unintended consequences that may arise.

The first problem relates to the task of specifying desired outcomes of instruction on which curricula and examinations might be based. The task involves important value judgments; hence it may not be easy to reach agreement on what the outcomes of schooling should be. Besides, such outcomes vary, even within a single country, according to the different circumstances in which schools operate and in which their students live.

Of interest in this context are proposals to make education more relevant to the needs of rural children (the majority of children in Africa). Such proposals have been made repeatedly in the history of African education (see, for example, Gifford and Weiskel 1971; Jones 1922, 1924). On the whole, they failed to gain acceptance, probably largely because of parents' antipathy to them. Since parents saw traditional academic education as the route to occupations with the greatest prestige and reward, a failure to provide children with such education was seen as limiting their occupational opportunities (see Blaug 1973; Bray, Clarke, and Stephens 1986; Foster 1965; Kellaghan 1991). It remains to be seen whether the current emphasis being placed on local relevance will be more acceptable than past efforts (see Lockheed and Verspoor 1990). It may be, as the number of children attending school increases, that the prospects of the more desirable occupations to which parents aspired for their children in the past will be seen to be less realistic. Much too may depend on the degree of localization that is introduced into curricula. If curricula for children in rural areas are limited to teaching basic principles relating to health and agriculture and do not deviate from the traditional curriculum to the extent that rural children would be at a disadvantage in scholastic competition, they may be more acceptable now than they were in the past. Further, the idea of relevance in curricula can be defended without reference to the future lives of children. Tasks that are related to a child's previous experience and are seen to have relevance to everyday life are more likely to motivate children to learn than are more abstract tasks.

A second problem in the design of examinations relates to the complexities involved in teaching stated objectives. The mere positing of goals, or even their incorporation into examinations, does not guarantee their achievement. Indeed, as we have seen above, it may inhibit them. The problem is likely to be most acute if the examinations, as test designers are increasingly striving to do, place emphasis on measuring higher-order behaviors rather than, or in addition to, general minimum lower-level behaviors. The earlier discussion alluded to the problem of measuring higher-order behaviors. Evidence is also available to indicate that teaching such behaviors is different in many ways from teaching lower-level rote behaviors. For example, higher-level behaviors take longer to teach, develop gradually over time, are less amenable to direct instructional approaches, are often difficult to locate in a curriculum, and may be too diffuse to drive instruction (Airasian 1988).

Faced with such difficulties, teachers may resort to teaching students test-taking strategies which may undermine the objectives of the examination (Madaus 1988; Madaus and Kellaghan, forthcoming). Over time, teachers become familiar with the formal requirements of the examination and prepare students to deal with these rather than with curricular objectives. Strong evidence of this has been observed in a number of African countries, and the evidence is not confined to Africa. Selection-type questions, when used in examinations, become a particular focus of attention. Not only are students taught how to cope with such questions, but normal teaching may be presented in the form of statements accompanied by a range of options from which students are required to choose, (for example, The capital of France is: Brussels, Paris, Lyon, Toulouse). This form of teaching may be used, not just in the examination class, but can filter right down the school, as has been observed in reception classes in African schools.

A further possible undesirable effect of public examinations, particularly if the results of schools are publicized, is that schools may require pupils to repeat grades, either to take more time to prepare for the examination or to avoid taking it at all (Madaus and Greaney 1985). In the case of Kenya, Oloo (1990) states, though he does not provide supporting data, that "it is fairly obvious that the schools which perform best in KCPE are those which enter a few selected candidates." Further, pupils, as a result of academic pressures, may leave school at an early stage. Grade repetition and drop-out are, in the United States at any rate, interrelated (Catterall 1989) and are probably the result of a variety of factors, which include family and student characteristics, low perceived benefits from education, and school ineffectiveness (Lockheed and Verspoor 1990; Swaziland, Ministry of Education 1986). Care should be taken to ensure that the pressures to perform well on public examinations do not lead to an exacerbation of problems of repetition and inefficiency in schools.

Finally, as has already pointed out in Chapter 4, the ranking of schools in terms of examination success, especially when no account is taken of the entry characteristics of pupils, their home circumstances, or the characteristics of schools, can be unfair and can have disastrous effects on the morale of schools.

Conditions to Improve the Administration of Examinations

In this section, some conditions relating to the administration of examinations and examination authorities are outlined. These are necessary if the efforts to develop public examinations which will have a positive effect on school curricula and student achievement are to be effective.

Examination Authority

In the first place, the body entrusted with the construction and administration of the examinations must be adequately financed and staffed. The body should have sufficient resources and competencies to develop examination instruments, to analyze examination performance, and to carry out research on examinations. Resources should include access to foreign exchange to allow for purchase, maintenance and repair of equipment. At present, most examination bodies in Africa have insufficient resources and are hard pressed just to administer the system, leaving no time for reflection or research.

Salary levels should be sufficiently attractive to ensure that skilled personnel are not forced to seek employment elsewhere. Frequently in the past, personnel with high-level skills have been attracted to other jobs, particularly in private industry, where salaries are higher.

In some countries, making examinations largely self-financing through examination fees has helped provide financial resources to enable the authority to operate with some degree of independence.

Whatever the location of an examinations body, it is crucial that it should be independent in the exercise of its functions. In some countries the examination body is located in a Ministry of Education; in other countries, it is a separate body, though working in close co-operation with the Ministry of Education. Elsewhere, the examination body is closely associated with a university; within some countries, in fact, universities and other authorities administer different public examinations. There are factors in favor and against each arrangement. The decision that is made in any individual country about the location and control of the examination body will probably be largely determined by the country's tradition and experience.

National Cooperation

Examinations represent one part of the educational process. Structures should be developed to allow the examinations authority to work in close liaison with bodies responsible for educational administration and curricula. Cooperation can help ensure that the public examinations serve the needs of all students in the system, improving the general quality of education and satisfactorily serving the functions of certification and selection. It can also help to ensure that examinations adequately reflect curricula and not only that, but that they are seen to do so. Public examinations that reflect national curricular priorities can serve as a powerful positive change agent in the educational system.

The examinations body should also work closely with teachers. Most examination bodies make use of teachers to mark examination scripts. This can be a good way of letting teachers know what is important in examinations. Obviously, it is important to have as many teachers as possible involved in this exercise so that first-hand information about examinations is generally available in the educational system.

Teachers can also be involved in constructing examination questions. For example, teachers might contribute items to a national item bank, from which examination questions might be selected. Apart from involving teachers directly in the examination process, this practice might also serve to integrate public examinations with the internal assessment procedures of schools. Teachers would come to know what things are assessed in public examinations and would follow similar practices in their own in-school assessments. At the same time, teachers would have an input into the examination system ensuring that what is asked in the public examinations is relevant and appropriate to their students.

Communication between examination boards and teachers could also be improved considerably through the introduction of newsletters which would include detailed results of pupil performance and how to deal with problems.

Other forms of communication from examination boards include providing information about standards through the school inspectorate and selected teachers, the provision of in-service courses, and responding to individual queries from teachers and other agencies. Pre-service teacher training should include courses on assessment. Participants in these courses should be introduced in a practical way to a variety of assessment procedures.

International Cooperation

In considering the reform of examinations, the need for cooperation and sharing of scarce resources should be recognized. Exchanges of item writers, markers, and other technical personnel, as is commonly carried out in a small number of countries, should be fostered. Security threats and procedures should be reviewed. While countries are not likely to administer common public examinations, international cooperative studies might be conducted on common curricular areas. Perhaps the main advantage of such comparative studies is the focus it could bring to bear on existing curricular goals and objectives in individual countries. Regional organizations such as the recently founded Association of Heads of Institutions Responsible for Examinations and Educational Assessment in East and Southern Africa should be encouraged and supported. Such organizations can provide a structure within which regional and international cooperation can be promoted.

Number and Format of Public Examinations

Consideration should be given to reducing the number of public examinations administered. Economies incurred should be devoted to improving the quality of the primary leaving and the senior-cycle secondary leaving-certificate examinations. Improving the quality of public examinations will of necessity require examination authorities to change existing modes of assessment. In particular, examination officials should be requested to improve the measurement of higher-order cognitive skills, and skills related to everyday life, and to develop techniques of oral, aural, and practical assessment.

Formal Training

Well developed, advanced-degree courses in measurement and assessment should be offered by at least one university in an Anglophone area and one in a Francophone area. In addition to recruiting students in the normal manner, special leave arrangements should be made to allow members of national examination authorities to enrol. Courses offered should cover item construction, psychometric theory, research design and methodology, curriculum theory and design, computer applications, and management.

7 Conclusion

In considering the reform of public examinations, it has to be recognized that some of the problems associated with examinations are not due to the format or administration of the examinations per se, but to structural aspects of the educational systems. For example, the severe shortage of sufficient secondary-school places would, irrespective of the quality of the examination used for selection purposes, inevitably have a strong limiting influence on teaching style and the nature of student learning towards the end of primary school. Thus, in the final analysis, it needs to be stressed that the role of public examinations in contributing to improvements in achievement levels will be tempered by a range of factors over which examination authorities have little or no control. Unless governments and ministries of education tackle the problems created by a lack of places in schools, poor quality of instruction, inadequate supplies of books and equipment, and the inability of students to understand the language of instruction, reforms in public examinations, no matter how far-reaching, are unlikely to be very effective.

While factors other than examinations affect school quality, they also place constraints on the kind and extent of examination reform that is possible. Thus, those concerned with proposing changes in examinations have to take into account the context in which the changes will be implemented. In particular, the conditions which operate in schools, which vary considerably across the countries considered in this report, and which include school facilities, the quality and availability of text books, number of unqualified teachers, class size, and provision for school supervision, will limit the options that are available to the examination reformer.

Having said that, it should be also recognize that unreformed examination systems are likely to cause damage to the quality of education offered in schools. It obviously makes sense to take steps to change such systems and to develop examinations which are more in keeping with principles of good assessment practice. Well designed and responsibly used assessment can be an important source of information about what and how well students are learning and which ones are most likely to make the most of opportunities that cannot be provided for all (see NCTPP 1990.)

Most countries, to varying degrees, have in recent years actually implemented changes in their examination systems. These changes relate to the techniques of assessment, to a broadening of the scope of assessment and, in turn and related to this, a shift in responsibility for assessment.

In Anglophone countries, the main change in techniques relates to the introduction of multiple-choice tests to replace free-response ones.

But there have been other changes. In some countries, the scope of the examinations has been broadened considerably by combining school-based assessments with the results of a terminal examination. This has increased the involvement of teachers in the assessment process, though these kinds of assessment are accompanied by strict monitoring procedures.

At one level, changes represent an attempt to improve efficiency by applying new technology. For example, the use of machine-scored multiple-choice items rather than person-scored essays helps to reduce scoring costs, as non-multiple choice examinations are between two and five times more expensive to design and grade than multiple-choice examinations (Heyneman 1986.) The changes may, however, represent more fundamental shifts in the control and role of examinations. The use of coursework assessment, for example, involves a shift in the control of examinations and of the selection process, which is based on it. Some of the other changes may herald a shift in emphasis in the role of examinations from one of selection to one of certification, as well as an attempt to replace assessment-led curricula by curricula-led assessment. Attempts to provide a more adequate sampling of curricula in examinations suggest, in addition to a concern for curricular validity, a concern with the performance of all children rather than just the ones that are likely to be selected to remain in the educational system and an effort to restructure testing so that talent is promoted rather than merely screened or classified.

These comments suggest that important values may underlie changes in examinations. Consideration should be given to these values and how they fit with a country's aims and priorities for its educational system. Insofar as any country can achieve consensus in its aims for education, it would seem important that, in considering examination reform, an attempt should be made to reach some level of agreement and establish some set of priorities in values pertaining to education. For example, is the function of the educational system primarily to select a small cohort of students for higher levels of education or is it to provide basic skills for the total population? Or is it to do both, and if it is, what kind of balance should be struck between the different functions? The rhetoric in most countries would suggest that the provision of basic skills for the total population is more important; present examination practice would often seem to suggest that selection is more important.

These considerations should not be taken to imply that an ideal assessment system will neatly fall into place once resources have been assessed and the values and aims of an educational system have been agreed, insofar as these can be agreed. As has been noted, no examination system is without its defects. The design of a system will inevitably involve a series of trade-offs so that final decisions will represent a set of provisional compromises among competing values (Eckstein and Noah 1988; Noah and Eckstein 1990.) Old and new values will most likely continue to compete. For example, even if greater emphasis is placed in policy on the education of all children, it is unlikely that the use of examinations for purposes of selection, even at a relatively early stage in the educational careers of children, can be abandoned.

Compromise too will be forced on countries by lack of resources. Thus, the guidelines set out in this report to improve assessment in public examinations are meant to be just that—directions in which to travel rather than objectives to be achieved in the immediate future. It is our belief, that if reforms are instituted which are pointed in the directions indicated in the guidelines, if the necessary administrative steps, set out also in the report, are taken, and if problems and undesirable effects are anticipated and steps taken to deal with them, then the quality of examinations and of educational systems in general will improve in Africa.

8 References

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9 Appendices

Appendix 1
National Education Systems

Countries and linguistic status	Compulsory school age	Entrance age and duration of first and second-level (general) education																
		5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
Anglophone																		
Kenya	-		P	P	P	P	P	P	P	P	S	S	S	S				
Lesotho	6-13			P	P	P	P	P	P	P	S1	S1	S1	S2	S2			
Mauritius	-	P	P	P	P	P	P	S1	S1	S1	S2	S2	S2	S2				
Swaziland	-		P	P	P	P	P	P	P	S1	S1	S1	S2	S2				
Uganda	-			P	P	P	P	P	P	P	S1	S1	S1	S1	S2	S2		
Zambia	7-14			P	P	P	P	P	P	P	S1	S1	S2	S2	S2			
Francophone																		
Chad	6-12			P	P	P	P	P	P	S1	S1	S1	S2	S2	S2			
Guinea	7-13			P	P	P	P	P	P	S1	S1	S1	S1	S2	S2	S2		
Madagascar	6-13			P	P	P	P	P	S1	S1	S1	S1	S2	S2	S2			
Mauritania	-			P	P	P	P	P	P	S1	S1	S1	S2	S2	S2			
Rwanda	7-15				P	P	P	P	P	P	P	P	S1	S1	S1	S2	S2	S2
Togo	6-12			P	P	P	P	P	P	S1	S1	S1	S1	S2	S2	S2		
Other																		
Cape Verde	7-13			P	P	P	P	P	P	S1	S1	S1	S2	S2				
Ethiopia	7-13			P	P	P	P	P	P	S1	S1	S2	S2	S2	S2			

P=Primary; S1=Secondary Junior Cycle; S2=Secondary Senior Cycle

Sources: UNESCO (1988), and national reports

Appendix 2

TITLES AND DESCRIPTIONS OF EXAMINATIONS

Countries/ Linguistic Status				
When Given	Title	Function	Type	Responsibility of
Anglophone				
KENYA				
1. End of primary (8)[a]	KCPE[b]	Certification/ Selection	Multiple-choice, Essay	KNEC
2. End of secondary (4)	KCSE	Certification/ Selection	Essay, Multiple-choice, Practical, Oral, Aural	KNEC
LESOTHO				
3. End of primary school (7)	Primary School Leaving Certificate Examination	Certification/ Selection	Almost all Multiple-choice, Letter and Essay	Ministry of Education
4. End of junior cycle secondary (3)	Junior Certificate Examination	Certification/ Selection	Essay, Short answer Practical	Examinations Council of Lesotho
5. End of senior cycle (2)	Cambridge Overseas Certificate Exam.	Certification/ Selection	Short answer, Essay	UCLES
MAURITIUS				
6. End of primary (6)	CPE Primary Educ. (CPE)	Certification/ Selection	Multiple-choice, Essay	MES
7. End of first cycle secondary age 16+ (2)	SC	Certification/ Selection	Multiple-choice Essay, Practical	MES and UCLES
8. End of second cycle secondary age 18+ (2)	HSC	Certification/ Selection	Multiple-choice Essay, Practical	MES in collaboration with UCLES and University of London GCE O- and A- Levels

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[a] Numbers in parentheses indicate the number of grades at a particular level.

[b] Acronyms defined on page ix.

Appendix 2 (continued)

When Given	Title	Function	Type	Responsibility of
SWAZILAND				
9. End of Primary (7)	Primary Certificate	Certification/ Selection	Multiple-choice plus Essay, Practical, Listening Comprehension	Swaziland Examination Council
10. End of first cycle secondary (Form 3)	Junior Certificate	Certification/ Selection	Multiple-choice plus Essay, Practical, Listening Comprehension	Swaziland Examination Council
11. End of second cycle secondary (Form 5)	Cambridge Overseas Certificate	Certification/ Selection	Short answer Essay	Swaziland Exam. Council and UCLES
UGANDA				
12. End of primary (7)	PLE	Certification/ Selection	Short answer	UNEB
13. End of first cycle secondary (4)	UCE	Certification/ Selection	Short answer Practical, Projects Oral, Aural	UNEB
14. End of senior cycle secondary (2)	UACE	Certification/ Selection	Short answer Practical, Projects Oral, Aural	UNEB
ZAMBIA				
15. End of primary (7)	Grade 7 Composite Examination	Certification/ Selection	Multiple-choice	Examinations Council of Zambia
16. End of junior cycle secondary (2)	Grade 9 Junior Secondary School Leaving Examination	Certification/ Selection	Essay, Multiple-choice, oral and aural , practical	Examinations Council of Zambia
17. End of senior cycle secondary (3)	Joint School Certificate and General Certificate of Education Exam.	Certification/ Selection	Essay, Multiple choice, Practical	Examinations Council of Zambia

Appendix 2 (continued)

When given	Title	Function	Type	Responsibility of
Francophone				
CHAD				
18. End of primary (6)	*CEPE* *CEPEA*	Certification	Written	SEC Ministry of Education
19. End of primary (6)	Primary *Concours*	Selection	Dictation, arithmetic	SEC, Ministry of Education
20. End of first cycle secondary (4)	*BEPC*	Certification	NA	SEC, Ministry of Education
21. End of first cycle secondary (4)	*Concours* for second cycle	Selection	Essay and Oral	SEC, Ministry of Education
22. End of second cycle secondary (3)	*Baccalauréat*	Selection / Certification	NA	National University of Chad
GUINEA				
23. End of primary (6)	Seventh year	Entrance/ Selection	NA	National Education Ministry
24. End of first cycle secondary (4)	*BEPC*	NA	NA	National Education Ministry
25. End of second cycle secondary (3)	*Baccalauréat*	Certifiction/ Selection	Written, Oral	National Education Ministry
MADAGASCAR				
26. End of primary (5)	*CEPE* (Regional Exam)	Certification/ Selection	Written	Ministry of Primary Ed. and Provincial Director
27. Annual first cycle secondary (4)	School-based	Selection/ Promotion	Written, Oral	School
28. End of first cycle secondary (4)	*CFEPCES*	Certification/ Selection	NA	Ministry of Primary and Secondary Education

Appendix 2 (continued)

When given	Title	Function	Type	Responsibility of
29. End of second cycle secondary (3)	*Baccalauréat*	Certification/ Selection	Written	Ministry of Higher Education
30. After two years of post-primary	*CFE*/FP1	Certification/ Selection	Written	Ministry of Secondary and Primary Education
31. After two years of senior cycle education	*CFE*/FP2	Certification/ Selection	Written	Ministry of Secondary and Primary Education
32. End of second cycle secondary (3)	*Baccalauréat technique*	Certification/ Selection	Written	Ministry of Secondary and Primary Education
MAURITANIA				
33. End of primary (6)	*CEE*	Certification	Written	Ministry of Education
34. End of primary (6)	Secondary entrance	Selection	Written	Ministry of Education
35. End of first cycle secondary (3)	*BEPC* (Not obligatory)	Certification/ Selection	NA	Ministry of Education
36. End of second cycle (3)	*Baccalauréat*	Certification/ Selection	NA	Ministry of Education
RWANDA				
37. End of primary school	*Concours*	Selection	Written	Ministry of Primary and Secondary Education
38. Term and end of year	School-based	Feedback/ Promotion	Written, Oral, Practical	Teacher
39. Third, fourth and fifth years of secondary	*Examens de reclassement*	Placement of students from private or foreign schools	NA	Committee for Programs in Secondary Schools

Appendix 2 (continued)

When given	Title	Function	Type	Responsibility of
40. NA	*Le Jury Central*	Certification/ Selection for private and repeat candidates	Oral	Committee for Programs in Secondary Schools
41. End of secondary (6)	NA	Certification	Written (Essay, Multiple-choice, Oral)	Committee for Programs in Secondary Schools
TOGO				
42. End of 6th grade	*CEPD*	Certification/ Selection	Written	DEC
43. End of first cycle secondary (4)	*BEPC*	Certification	Written	DEC
44. End of first cycle secondary (4)	*Concours*	Selection	NA	DEC
45. End of second cycle secondary (3)	*Baccalauréat*	Certification	Written and oral	DEC and Directorate of Third Level Education
46. End of secondary	*Concours*	Selection for university	Written	DEC
Other				
CAPE VERDE				
47. End of basic complementary (2)	Elementary cycle examination (Exemption option)	Certification/ Selection	Written, Oral	National Examination Committee, Ministry of Education
48. End of general secondary education (3)	General secondary examination (Exemption option)	Certification/ Selection	Written, Oral	National Examination Committee, Ministry of Education

Appendix 2 (continued)

When given	Title	Function	Type	Responsibility of
49. End of complementary secondary education (2)	Diploma of Upper Secondary Educ. (Exemption option)	Certification/ Selection	Written, Oral, Practical	National Examination Committee, Ministry of Education
ETHIOPIA				
50. End of primary (6)	Grade 6 National Examination	Certification/ Selection	Multiple-choice, School-based component	National Examination Board, Ministry of Education
51. End of Grade 8: (2 years - first cycle)	Grade 8 National Examination	Certification/ Selection	Multiple-choice	NEB, Ministry of Education
52. End of Grade 12: (4 years - second cycle)	ESLCE	Certification/ Selection	Multiple-choice (Essay up to 1977)	University of Addis Ababa

Kenya Certificate of Primary Education: Sample Essay and Marker's Comments

That evening my father came home looking unusually happy. He told me he had something to tell us, but before he could do that, he asked me to go and call Heri. When we both came in we found that everyone else was waiting for the two of us. My father as usual was seated on his armchair with a cigarette in his mouth. My mother was standing by him and my two other sisters were seated at the dining table. We all had an idea of what the good news was but we were unsure.

When everybody had seated down, my father began talking. There was suddenly a cry of joy and everbody came rushing towards me. It was so sudden that I almost fell off my seat. Everybody was hugging me and doing all sorts of funny things. I just could not believe my eyes. What I had been waiting for so anxiously was now revealed. It was too good to be true. I do not know how I made it, but passing my examination was the best news I had ever heard. None of us could control ourselves. Some of us almost jumped high enough to touch the ceiling with our heads. All that was ringing in my head was that I had passed with flying colours and to which school I would be chosen to go.

My father asked everyone to be silent since he had not finished saying what he wanted. Once resettled, he told us that I was among the top people in the school and that I would get an award for that. He also told us that he was to go and check which school had chosen me to be one of their students. I was overjoyed in such a way that I could hardly move from where I was now seated. I could just remember the way I was so nervous while doing the exams and all the words of good luck from my friends and relatives. I was glad that all the messages in the cards had been fulfilled and also the fact that I did not disappoint my parents. This had happened before with Heri, but I had challenged him and beaten him. I could remember all the promises made to me by my uncles and aunts and I felt as though my heart was smiling inside.

After having supper that night, I was called to my parent's room and asked what I wanted to have as a present. I named almost everything one could think of and this made them laugh since they knew the situation I was in and in which they had also gone through. Since they could not buy me everything, I was promised the most essential things. I would never forget that day because it was the happiest day of my life and having that feeling inside me makes me feel that in future I will also do well.

Mark Awarded: 37

Marker's Comments:

Although this piece of writing was not the very best, it did represent that top quality writing which is not very easy to come by. Candidates who reached this standard were actually very few. Except for such errors as the usage of 'seated' instead of the simple past 'sat' and such flaws as 'after having supper that night'—a candidate as this would even have scored higher marks had he been more interesting and had he used a greater variety of structures in his writing.

From the brief analysis of errors in the compositions included in this newsletter and in other compositions written by candidates in 1985 KCPE we discovered that certain kinds of errors were being made repeatedly. Incorrect verb tenses, wrong usage of words, spelling errors and errors in syntax were widespread.

Examples:

Incorrect verb tenses:

We all sit down and listen to him. (We all sat down and listened to him.)

My father did not agreed. (My father did not agree.)

They took the money and leave him crying. (They took the money and left him crying.)

Numerous similar errors were made by candidates.

Source: Kenya National Examinations Council (1986)

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